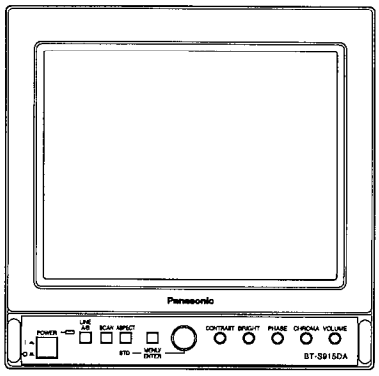
ORDER NO. VED9905279C1
D6

Service Manual



Color Video Monitor

BT-S915DA

G19M Chassis

The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in this service manual.

Specifications

Power Source:
AC 120V, 50/60Hz
Maximum Amperes:
0.85A
Picture Tube:
9" diagonal, 90° deflection
in-line gun
dot pitch 0.50mm
Effective Screen Size:
Width: 175mm
Height: 137mm
Horizontal Resolution:
typical 300TV lines
Color Temperature:
6500k / 9300k / USER selectable
Color System:
NTSC / PAL / SECAM
Audio Power Output:
1W (10% THD)
Speaker:
Round (6.6cm) x 1, 16Ω
Dimensions:
Width: 8 25/32" (223mm)
Height: 9 5/32" (229mm)
Depth: 12 59/64" (328mm)
Weight:
15.9 lb (7.2 kg)
Operating Temperature:
32 – 104°F (0 – 40°C)
Operating Humidity:
20 – 80%

Input/Output Connectors:
LINE A: (IN/OUT) VIDEO (BNC)
1Vp-p (75Ω or High-impedance Auto)
S-VIDEO (Mini DIN 4-pin)
Y: 1Vp-p (75Ω or High-impedance Auto)
C: 0.286Vp-p (75Ω or High-impedance Auto)
AUDIO (RCA pin jack)
0.5Vrms (more than 22kΩ)
LINE B: (IN/OUT) Y (BNC)
1Vp-p (75Ω or High-impedance Auto)
P_B,P_R (BNC)
±0.35V
RGB (BNC)
0.7Vp-p (75Ω or High-impedance Auto)
G on sync: 1Vp-p (75Ω or High-impedance Auto)
AUDIO (RCA pin jack)
0.5Vrms (more than 22kΩ)
EXT SYNC: (IN/OUT) Composite Sync (BNC)
0.3 - 4.0Vp-p (75Ω or High-impedance Auto)
REMOTE: M3 Jack
DC OUT: DC 6V, 0.7A OUT for ET-SD06U
Accessory:
AC power cord
Options:
Rack fitting kit (TY-LK100)
(Serial) Digital interface unit (ET-SD06U)

- Design and specifications are subjects to change without notice.
- The weight and dimensions shown are approximate.

Panasonic®

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⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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THIS MODEL COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J IN EFFECT AS OF DATE OF MANUFACTURE.

IMPORTANT SAFETY NOTICE

There are special parts used in Panasonic Monitor sets which are important for safety. These parts are shaded on the schematic diagram. It is essential that these critical parts should be replaced with manufacturer's specified ones to prevent X-Radiation, shock, fire, or other hazards. Do not modify the original design without permission of PANASONIC BROADCAST & TELEVISION SYSTEMS COMPANY.

WARNING: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION: Any unauthorized changes or modifications to this equipment would void the users authority to operate.

Safety Precautions

General Guidelines

- It is advisable to insert an isolation transformer in the AC power line before servicing a hot chassis.
- When servicing this monitor, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all the parts which have been overheated or damaged by the short circuit.
- After the service, check that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations are properly installed.
- Before turning the monitor on, measure the resistance between a B+ line and a cold-side chassis ground. Connect the "–" side of an ohmmeter to each B+ line, and the "+" side to a chassis ground. The resistance of each line must be higher than specified as follows:

B+ Line	Minimum Resistance
115V	150 Ω
14.5V	40 Ω
14.0V	150 Ω
10.0V	150 Ω

- When the monitor is not used for a long period of time, unplug the AC power cord plug from the AC line outlet.
- High voltage points, as high as 22.0kV, are present when this monitor is in operation. Operating the monitor without the rear cover involves you in a dangerous electric shock from the monitor power supply. Servicing must not be attempted by anyone who is not thoroughly familiar with the necessary precautions when working on high voltage equipment. Always discharge the anode of the picture tube to the chassis ground before handling the picture tube.
- After the service, make the following leakage current checks to prevent the customer from getting an electric shock.

Leakage Current Cold Check

1. Unplug the AC power cord and connect a jumper wire between the two prongs of the AC plug.
2. Set the power switch of this monitor to the ON position.
3. Measure the resistance with an ohmmeter between the prongs of the AC plug and each exposed metallic cabinet part on the monitor such as screw heads, connectors, and control shafts. When the exposed metallic part has a return path to the chassis, the ohmmeter should read between 5MΩ and 15MΩ. When the exposed metallic part does not have a return path to the chassis, the reading must be infinity.

Leakage Current Hot Check

1. Plug the AC power cord directly into an AC line outlet. Do not use an isolation transformer for this check.
2. Connect the test jig shown in Fig.1 between each exposed metallic part on the monitor and an earth ground such as a water pipe.
3. Use an AC voltmeter having a high impedance (lkΩ/V or higher) to measure the voltage.
4. Measure the voltage at each exposed metallic part.
5. A voltage at any point must be less than 0.25Vrms.
6. A leakage current tester (Simpson Model 229 or the equivalent) may be used to make the hot checks. In this case, the current must be less than 500μA.
7. If the reading is outside of the specified limit, the monitor must be repaired and rechecked before it is returned to the customer because of a possibility of an electric shock.

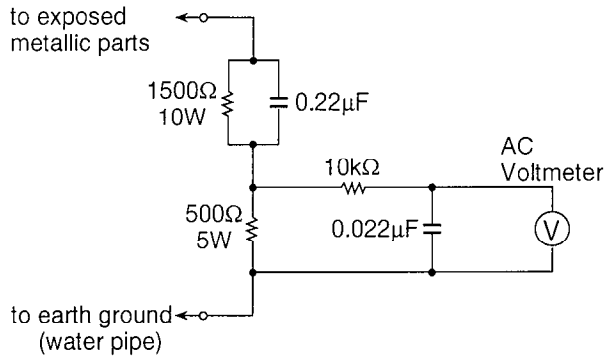


Fig. 1

X-Radiation

Warnings:

- The potential sources of X-Radiation in the monitor are the high voltage section and the picture tube.
- When using a picture tube test jig for service, check that the jig is capable of handling 25.0kV without causing X-Radiation.

Note:

- It is important to use an accurate, periodically calibrated high-voltage meter.

1. Turn the BRIGHT and CONTRAST controls counterclockwise fully.
2. Check that the high voltage is 22.0±1.5kV when receiving a PAL cross hatch pattern signal. If not, immediate service and correction is required to prevent a possibility of premature component failure.
3. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

Horizontal Osc. Disable Circuit Test

This test must be made as a final check before the monitor is returned to the customer.
Fig. 2 shows the horizontal osc. disable circuit.

1. With the rear cover removed, supply a normal 120V AC to the monitor and turn the power on.
2. Set the customer controls to normal operating positions.
3. Input a monoscope pattern signal.
4. Short R571 with a jumper wire.
5. Check that the AC power supply voltage is 120V.
6. Check that the high voltage vanishes and the raster stops.
   If these do not occur, the horizontal osc. disable circuit is not operating properly. Repair this circuit according to the following procedure before returning the monitor to the customer.

Repair Procedure of Horizontal Osc. Disable Circuit

1. Connect a DC voltmeter between the "+" side of C550 and a chassis ground. If the voltmeter does not read nearly 20V, check R569, D520, C550, R571, R572, and R573.
2. Connect the "+" side of the DC voltmeter to the collector of Q803 and the "-" side to TPA4 (GND). The collector voltage of Q803 changes from nearly 11V to 0.1V when R571 is shorted. If this does not occur, check Q518, C568, R581, Q515, C558, R574, R575, Q514, C551, R570, D521, C554, C555, D524, R576, R582, R590, R577, C564, R591, C562, Q517, D526, R579, D509, R573, R572, R571, C550, D520, R569, R836, R835, C837, Q803, D818, R834, and D823.
3. Carefully check the above specified parts and related circuits and parts. After repairing this circuit, make the horizontal osc. disable circuit test again.
4. If replacing at least one of R569, R571, R572, D521, R573, and the fly-back transformer with a new one, adjust the horizontal osc. disable circuit according to the procedure on the next page.

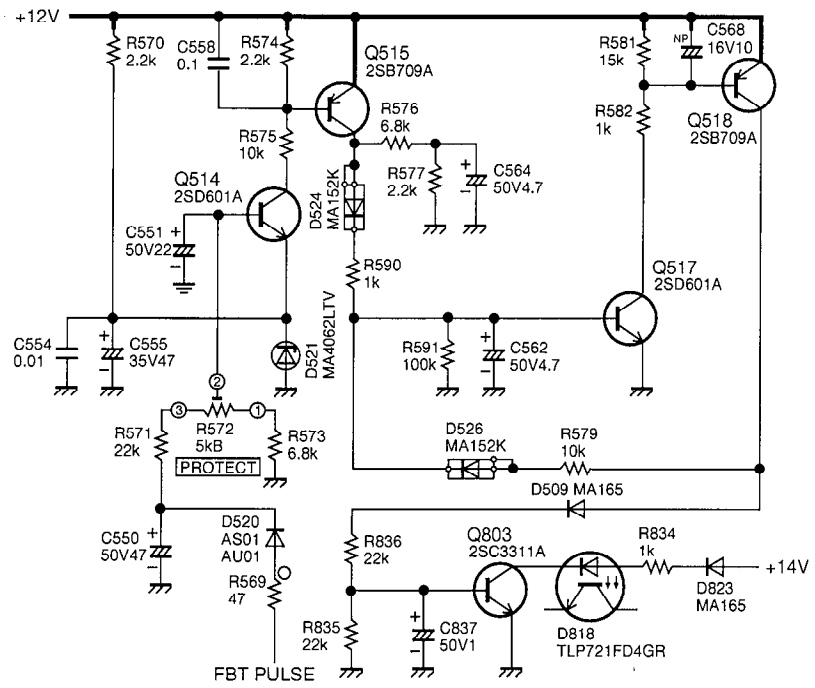
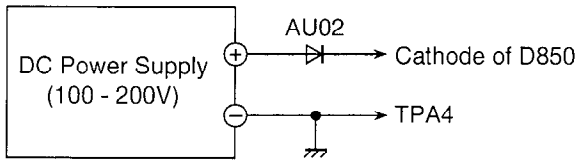


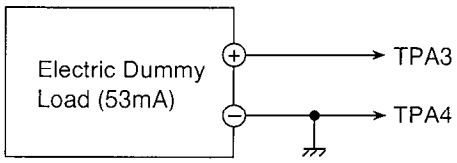
Fig. 2

Adjustment Procedure of Horizontal Osc. Disable Circuit

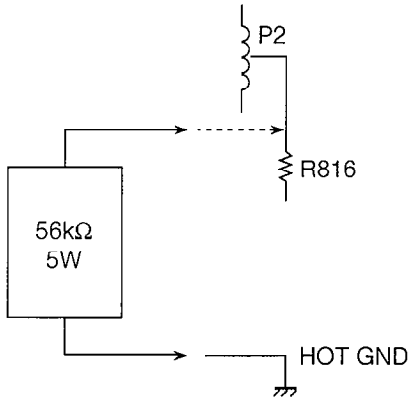
1. Set the following controls and jigs to the conditions below.
   - R572 (PROTECT) --- counterclockwise fully
   - CONTRAST, BRIGHT, PHASE, CHROMA --- click point
   - VOLUME --- minimum
   - Connect a DC power supply between the cathode of D850 (+) and TPA4 (-) through a diode (AU02) as shown below.



   - Connect an electric dummy load between TPA3 (+) and TPA4 (-) as shown below.



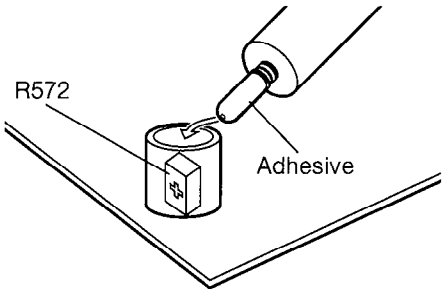
   - Connect a resistor (56kΩ/5W) between the T802 P2-winding side of R816 and the minus side of C812 (HOT GND) as shown below.



   - Connect a DC ampere meter in series to the anode lead wire of the picture tube to measure a beam current.
   - Connect a DC voltmeter between the cathode of D819 (+) and TPA4 (-).
   - Connect an electrostatic high-voltage meter between the anode of the picture tube and a chassis ground.
2. Input a PAL cross hatch pattern signal to LINE A.
3. Turn on the monitor and set it to the OVERSCAN mode.
4. Set the CONTRAST and BRIGHT controls to their minimums and check that the high voltage is 22.0±1.5kV.
5. Change the input signal to a Philips pattern signal.
6. Adjust the CONTRAST, BRIGHT, and SCREEN controls to obtain a beam current of 280μA.
7. Turn on the electric dummy load and adjust it to obtain a current of 53mA.
8. Turn on the DC power supply and adjust it to obtain a high voltage of 24.5±0.3kV.
9. Check that the high voltage is 24.5±0.3kV and the beam current is 280μA. If not, follow steps 6 and 8 again.
10. Turn R572 (PROTECT, A-P.C.Board) clockwise gradually until a shutdown occurs and set it at the starting position of the shutdown.

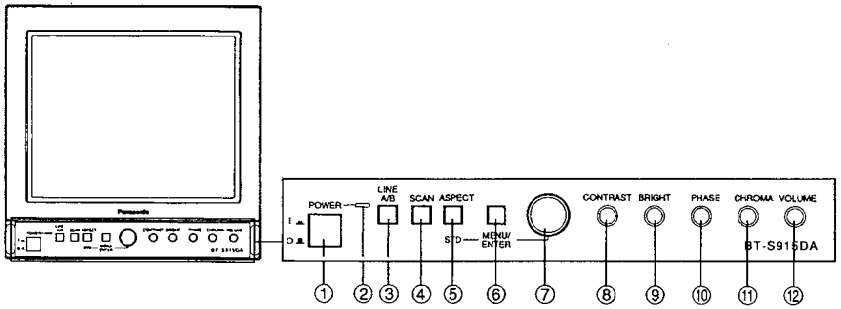
    Note:
    - A shutdown means that the high voltage vanishes and the raster stops.

11. Minimize the DC power supply voltage gradually and turn it off.
12. Turn off the monitor and turn it on again a few seconds later.
13. Turn on the DC power supply again, increase its output voltage gradually, and check that a shutdown occurs at the high voltage of 24.5±0.3kV and the beam current of 280μA. If not, follow step 8 through 12 again.
14. Turn off the monitor.
15. Disconnect all the jigs connected in step 1.
16. Cover R572 with a sleeve and secure it in place with an adhesive as shown below.



Operation of Front Panel Controls

Front View

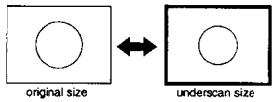


① POWER switch
This switch is used to turn the monitor power on and off.

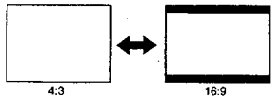
② Power Indicator
This indicator will light when the power is on.

③ Input Selector Switches
Two signal inputs (LINE A/LINE B) can be selected.

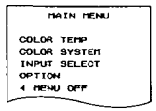
④ Underscan Switch
Press this switch for under-scanning.



⑤ Aspect/STD Switch
Press this switch to change the aspect ratio to 16:9. To return to the original aspect, press this switch again. (If a menu is being displayed, this switch changes the adjustment value displayed to the factory default setting.)

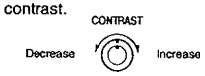


⑥ MENU/ENTER switch
This switch is used to turn the menu screens on and off and to accept a setting.

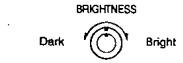


⑦ Rotary switch
This switch is used to move the cursor among items to be selected in a menu screen, and to adjust the picture.

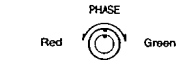
⑧ Contrast Control
Adjust the contrast level for the desired overall contrast.



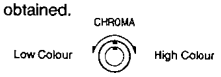
⑨ Brightness Control
Adjust the brightness level for the desired overall picture or display brightness.



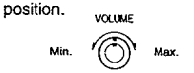
⑩ Phase Control (for NTSC)
Adjust the phase control for the proper color phase or flesh tone tint.



⑪ Chroma Control
Adjust the chroma control to the color saturation level. This function does not operate during RGB input. If the adjustment value is "Min.", color display is forced off so that a black-and-white picture is obtained.

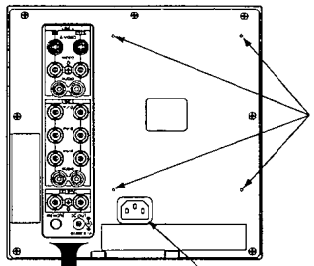


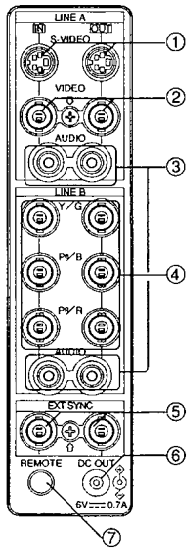
⑫ Volume Control
Adjust the control for the appropriate audio level. If the audio section is not used, turn to the minimum position.



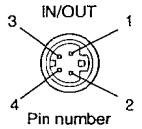
Location of Connectors

Rear View





① S-Video Input/Output Terminals (MINI DIN 4-pin)
Luminance signal and chroma signal input/output terminals.



Pin No.	Function
1	Ground (Luminance)
2	Ground (Chroma)
3	Luminance
4	Chroma

② Video Input/Output Connections (BNC)
These BNC connectors feature automatic termination. When BNC cables are connected to both the input and output connectors, the 75Ω termination will be automatically opened.

③ Audio Input/Output Connectors (RCA Phono)

④ RGB/YPBPR Input Connectors (BNC)
These terminals are used to input analog RGB signals (primary color signals) or analogue component (YPBPR) signals (color difference signals).

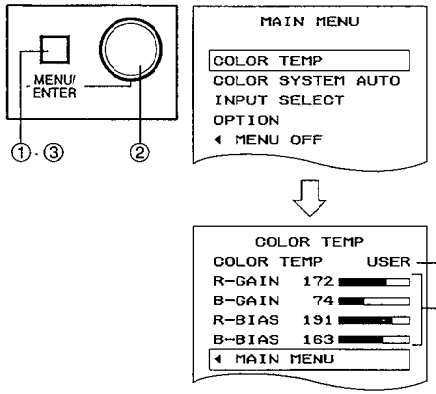
⑤ External Sync Input/Output Connectors (BNC)
These connectors are a loop through Input for external sync from RGB or YPBPR signals.

⑥ DC OUT JACK
This jack can supply 6 Volts to power the Optional Digital Interface Unit (ET-SD06U).

⑦ REMOTE Jack (M3)
The remote control for selecting the aspect ratio plugs in here.

Control Menu Operation

Displaying the COLOR TEMP menu



① Press to display the MAIN MENU screen.
② Turn to select "COLOR TEMP".
③ Press to display the COLOR TEMP menu.

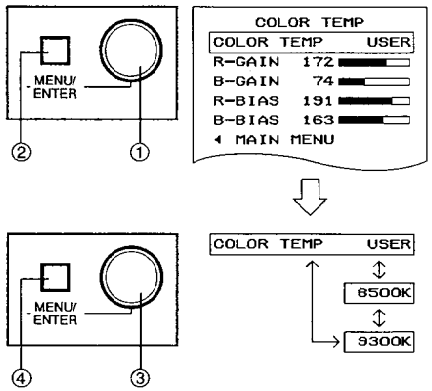
NOTE:
- To clear the MAIN MENU screen, turn the rotary switch to select "MENU OFF" and then press the MENU/ENTER switch.

Standard color temperatures for the picture currently being received

Adjustment value for user mode color temperature (Cannot be selected when not in user mode)

NOTE:
- To return to the MAIN MENU screen, turn the rotary switch to select "MAIN MENU" and then press the MENU/ENTER switch.

Changing the color temperature

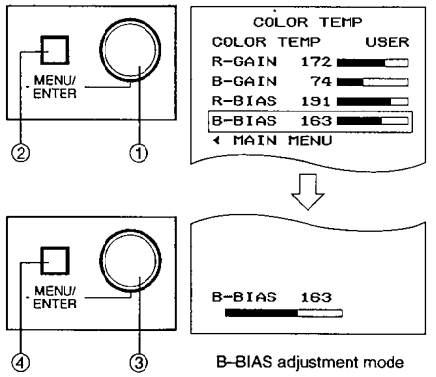


① Turn to select "COLOR TEMP".
② Press to enter color temperature select mode.
③ Turn to select the color temperature.
④ Press to accept the setting.

NOTE
- The user mode color temperature is set to "6500K" at the time of shipment from the factory.
- Color temperature settings are stored separately for LINE A and LINE B.

Adjusting the user mode color temperature

Example: Adjusting B–BIAS



B–BIAS adjustment mode

① Turn to select "B–BIAS".
② Press to enter adjustment mode.

NOTE
- This cannot be selected except when adjusting the user mode color temperature.

③ Turn to adjust.

Decrease ↺ Increase

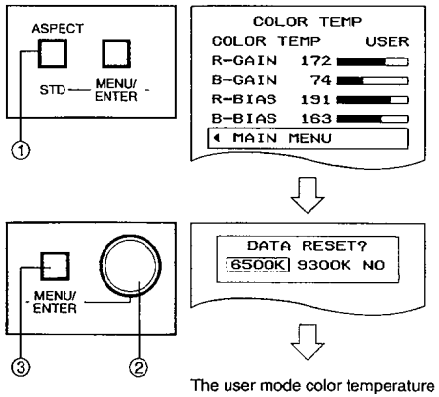
④ Press to store the setting.

NOTE
- If the ASPECT/STD switch is pressed in step ③ after the adjustment has been made (before the MENU/ENTER switch is pressed), the value will return to what it was before adjustment.

DATA UNDO?
[YES] NO

Returning the adjusted user mode color temperature to the standard setting (factory default setting)

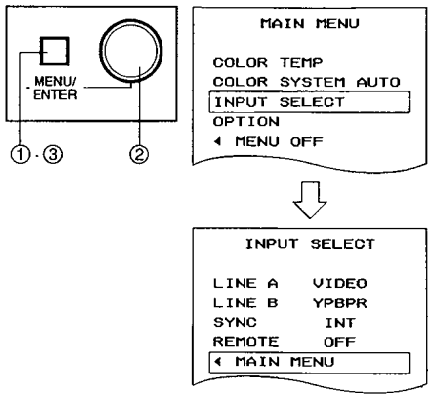
Press the ASPECT/STD switch when the COLOR TEMP menu is displayed.



① Press the ASPECT/STD switch.
② Turn to select "6500K" or "9300K".
③ Press to reset.

The user mode color temperature setting will then return to the standard setting.

Displaying the INPUT SELECT menu

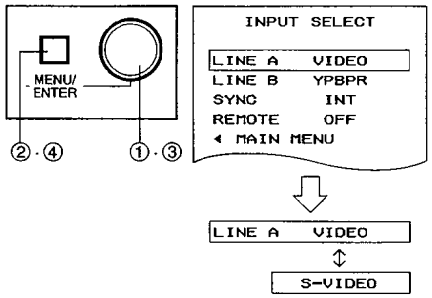


① Press to display the MAIN MENU screen.
② Turn to select "INPUT SELECT".
③ Press to display the INPUT SELECT menu.

NOTE:
- To clear the MAIN MENU screen, turn the rotary switch to select "MENU OFF" and then press the MENU/ENTER switch.

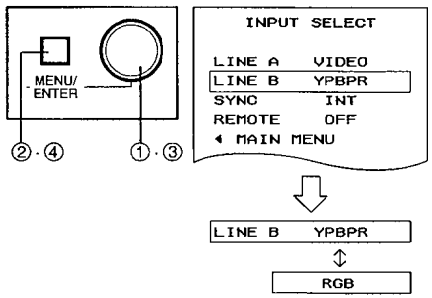
NOTE:
- To return to the MAIN MENU screen, turn the rotary switch to select "MAIN MENU" and then press the MENU/ENTER switch.

Switching to LINE A (Video and S-Video signals)



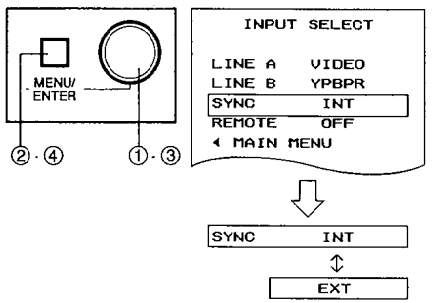
① Turn to select "LINE A".
② Press to enter selection mode.
③ Turn to select "VIDEO" or "S-VIDEO".
④ Press to accept the selection.

Switching to LINE B (RGB and YPBPR signals)



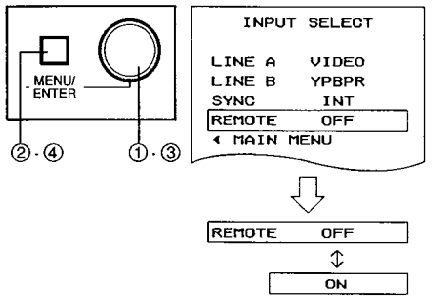
① Turn to select "LINE B".
② Press to enter selection mode.
③ Turn to select "YPBPR" or "RGB".
④ Press to accept the selection.

Selecting the synchronization method (external or internal synchronization)



① Turn to select "SYNC".
② Press to enter selection mode.
③ Turn to select "INT" (internal) or "EXT" (external).
④ Press to accept the selection.

Turning remote operation on and off



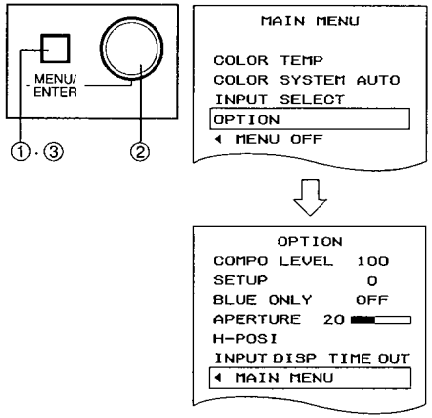
① Turn to select "REMOTE".
② Press to enter selection mode.
③ Turn to select "OFF" or "ON".
④ Press to accept the selection.

"OFF" ... The aspect can be changed using the ASPECT/STD switch at the front of the set.
"ON" ... The aspect can be changed using the external switch connected to the REMOTE Jack at the back of the set.

ON (short)	16:9
OFF (open)	4:3

NOTE
- When set to "ON", the ASPECT switch at the front of the set will not function.

Displaying the OPTION menu



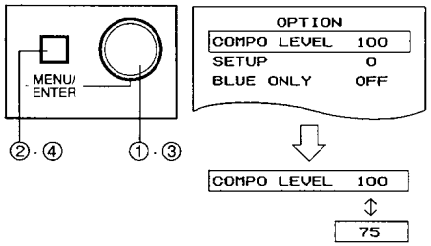
① Press to display the MAIN MENU screen.
② Turn to select "OPTION".
③ Press to display the OPTION menu.

NOTE:
- To clear the MAIN MENU screen, turn the rotary switch to select "MENU OFF" and then press the MENU/ENTER switch.

NOTE:
- To return to the MAIN MENU screen, turn the rotary switch to select "MAIN MENU" and then press the MENU/ENTER switch.

Changing the component level

The component level can be changed when LINE B (YPBPR) is selected.

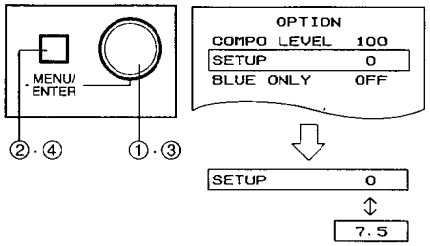


① Turn to select "COMPO LEVEL".
② Press to enter selection mode.
③ Turn to select "100" or "75".
④ Press to accept the selection.

100: Y, PB, PR for use with 100% color bar standard system
75: Y, PB, PR for use with 75% color bar standard system

Changing the setup level

The setup level can be changed when LINE A (NTSC) or LINE B (YPBPR) is selected.

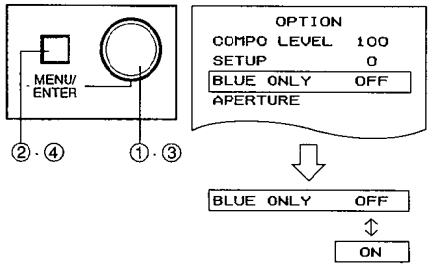


① Turn to select "SETUP".
② Press to enter selection mode.
③ Turn to select "0" or "7.5".
④ Press to accept the selection.

0: For video signal without set-up level
7.5: For video signal with set-up level (7.5%)

BLUE ONLY mode

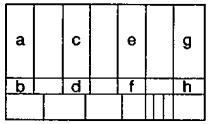
Blue only mode is used to adjust the chrominance and phase when the color bars are displayed.



① Turn to select "BLUE ONLY".
② Press to enter selection mode.
③ Turn to select "ON" or "OFF".
④ Press to accept the setting.

NOTE
- This cannot be changed when LINE B (RGB) is selected.

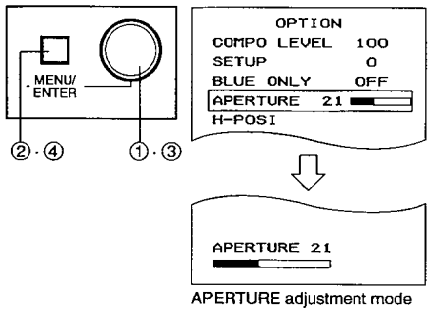
<Setting the chrominance and phase when using BLUE ONLY mode>



SMPTE color bar pattern

1. Input a SMPTE color bar signal as shown at left, and then follow the procedure above to set BLUE ONLY mode.
2. Use the phase VR to adjust so that c, d, e and f are at the same level.
3. Use the chroma VR to adjust so that a, b, g and h are at the same level.
4. Repeat steps 2 and 3 until a, b, c, d, e, f, g and h are at the same level.
5. The chroma and phase will be set once you exit BLUE ONLY mode.

Adjusting the aperture



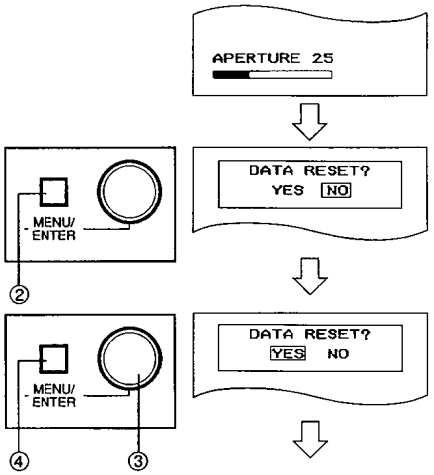
APERTURE adjustment mode

① Turn to select "APERTURE".
② Press to enter adjustment mode.
③ Turn to adjust.
Decrease ◯ Increase
④ Press to store the setting.

NOTE
- Aperture adjustment values are stored separately for LINE A and LINE B.

Returning APERTURE adjustment values to standard settings
(factory, default settings)

Press the ASPECT/STD switch after entering APERTURE adjustment mode.



① Enter APERTURE adjustment mode.

② Press the ASPECT/STD switch.

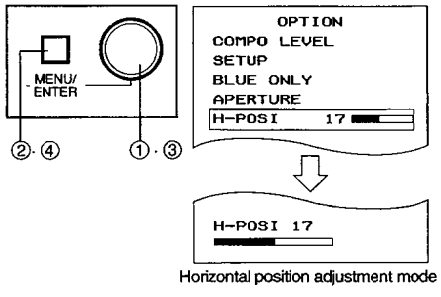
③ Turn to select "YES".

④ Press to reset.

The APERTURE setting value will then return to the factory default setting, and the OPTION MENU screen will be displayed.

Adjusting the horizontal position

The horizontal picture position can be changed when LINE B (RGB) is selected.



Horizontal position adjustment mode

① Turn to select "H-POSI".

② Press to enter adjustment mode.

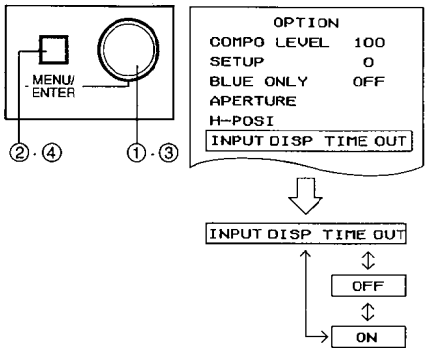
③ Turn to adjust.

to left ◯ to right

④ Press to accept the setting.

The horizontal position value can be returned to the factory default setting by following the same procedure as for the aperture setting given above.

Selecting the input display



① Turn to select "INPUT DISP".

② Press to enter selection mode.

③ Turn to select "TIME OUT", "OFF" or "ON".

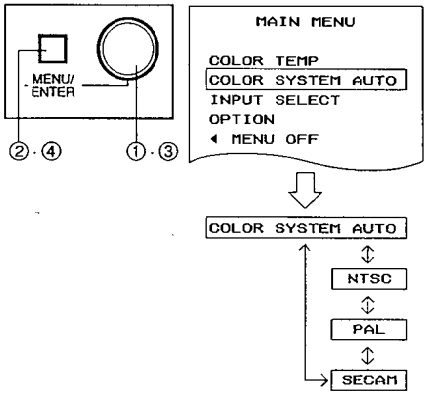
"TIME OUT"... When the input source is changed, the source is displayed for a few seconds and then disappears automatically.

"OFF" ..... Not displayed

"ON" ..... Always displayed

④ Press to accept the setting.

Selecting the color system format



① Press to display the MAIN MENU screen.

② Turn to select "COLOR SYSTEM".

③ Press to enter selection mode.

NOTE

- This can only be selected for LINE A input.

④ Turn to select the format.

⑤ Press to accept the selection.

- This should be set to "AUTO" for normal use.

NOTE

- When "AUTO" is set, the format will be detected automatically if the input signal is in either NTSC, PAL or SECAM format.
- If there is a lot of noise in the input signal or if the signal level is low, the picture may not be stable if "AUTO" is selected. If this happens, select the appropriate format for the signal manually.
- To clear the MAIN MENU screen, turn the rotary switch to select "MENU OFF" and then press the MENU/ENTER switch.

Disassembly Instructions

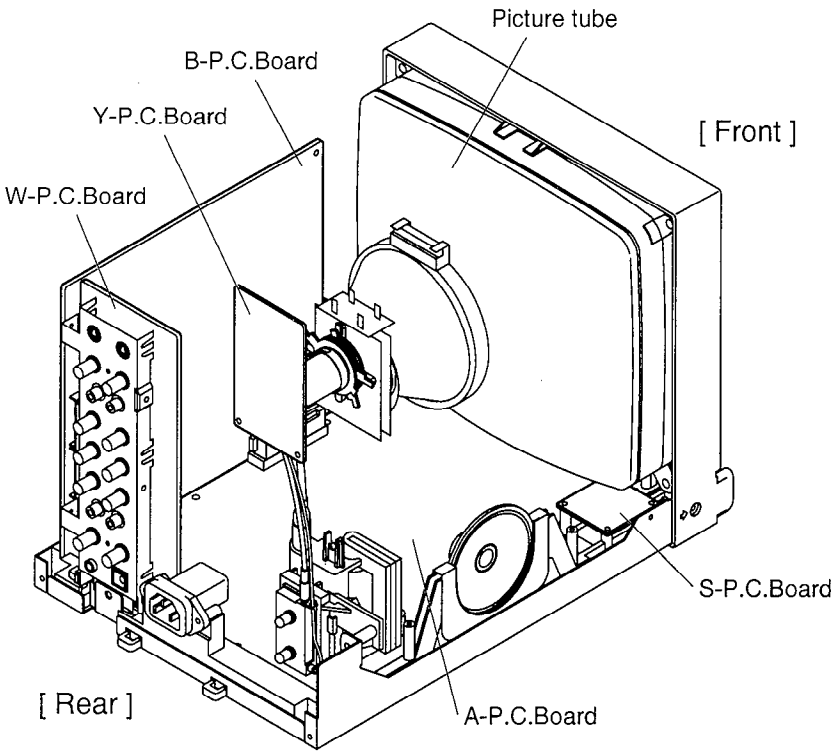
Warning:
- Be sure to unplug the AC power cord from the AC power outlet before disassembling this monitor

Cautions:
- When turning over a printed circuit board, be sure to put a insulating material under it to prevent a short circuit.
- Printed circuit boards and wires must not be pulled forcibly, but be handled carefully.
- Connectors also must be handled carefully.

Cautions:
- After repairing this monitor, be sure to put back the wires and connectors to the original conditions.
- When removing the rear panel, take care not to damage the neck of the picture tube.

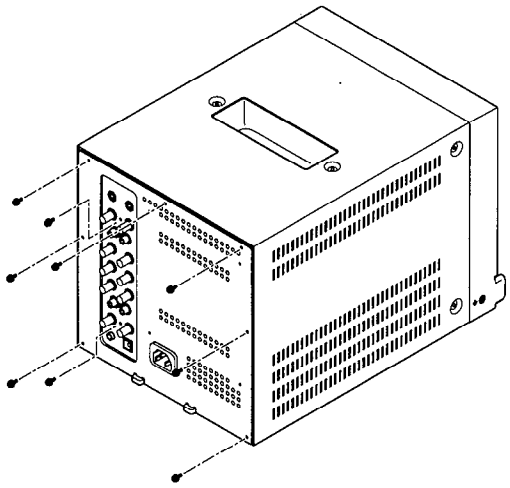
Note:
- After replacing any P.C.Board with a new one, be sure to check the picture quality. If there is a problem, adjust the items related to its problem according to the chapter "Measurements and Adjustments".

Printed Circuit Board Layout

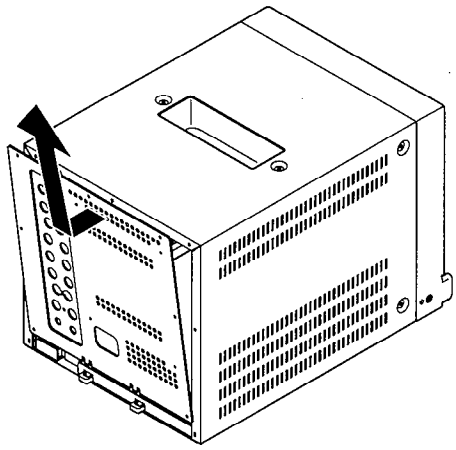


Removal of Rear Cover

(1) Unscrew the 9 screws fixing the rear cover.

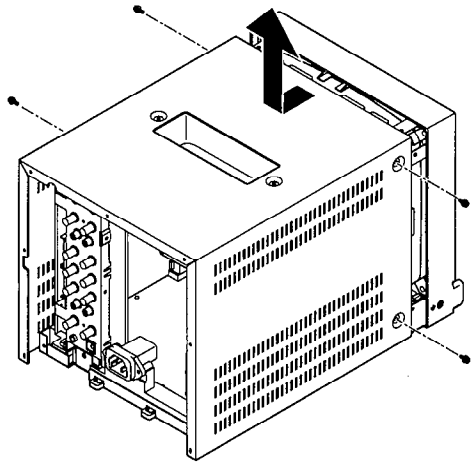


(2) Lift off the rear cover while tilting its top backward.



Removal of Metallic Cabinet

(1) Unscrew the 4 screws fixing the cabinet.
(2 screws per side)
(2) After sliding the cabinet about 10mm backward, lift it off while opening its bottom portions a little

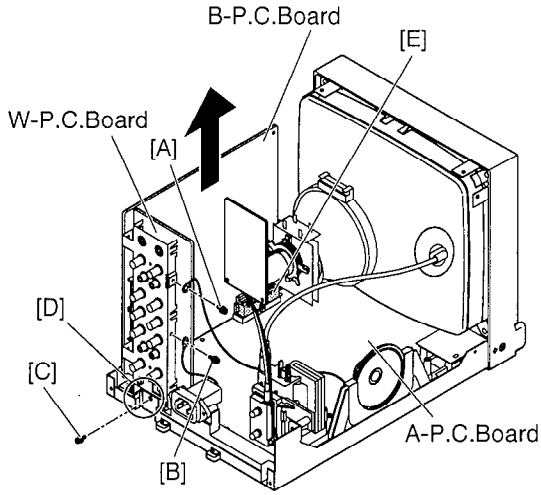


Removal of B- and W-P.C.Boards

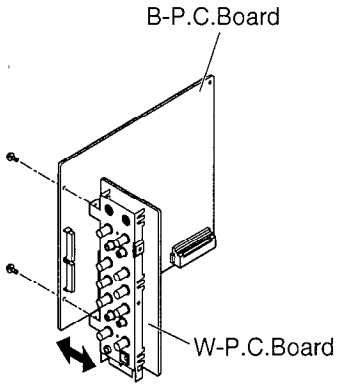
Note:

- If replacing B-P.C.Board with a new one, remove IC003 (EEPROM: TVRJ299) from the old P.C.Board and then install the removed IC on the new one.

(1) Remove the rear cover according to the section "Removal of Rear Cover".
(2) Remove the metallic cabinet according to the section "Removal of Metallic Cabinet".
(3) Unscrew 2 screws [A] and [B] fixing the earth lugs.
(4) Disconnect the wires connected from other P.C.Boards to B- and W-P.C.Boards.
(5) Unscrew screw [C] fixing W-P.C.Board.
(6) Remove the fit part of the bracket of W-P.C.Board from the chassis. ([D] portion)
(7) Disconnect the connector between B-P.C.Board and A-P.C.Board. ([E] portion)
(8) Lift off B- and W-P.C.Boards.

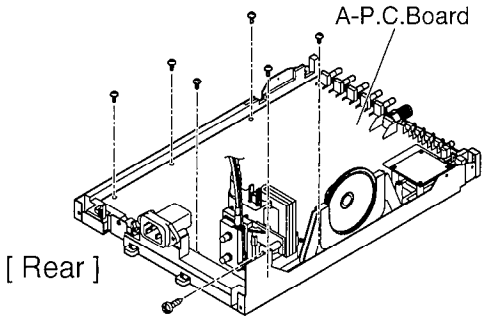


(9) Remove the 2 screws fixing B- and W-P.C.Boards each other.
(10) Disconnect the connectors between B-P.C.Board and W-P.C.Board.



Removal of A-P.C.Board

(1) Remove the chassis according to step 1-(1) through 1-(6) in the section "Replacement Procedure" of the next chapter.
(2) Unscrew the screw fixing the fly-back transformer.
(3) Unscrew the 6 screws fixing A-P.C.Board.

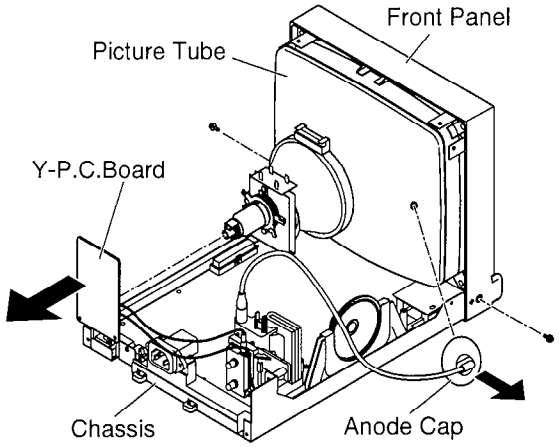


Picture Tube Replacement

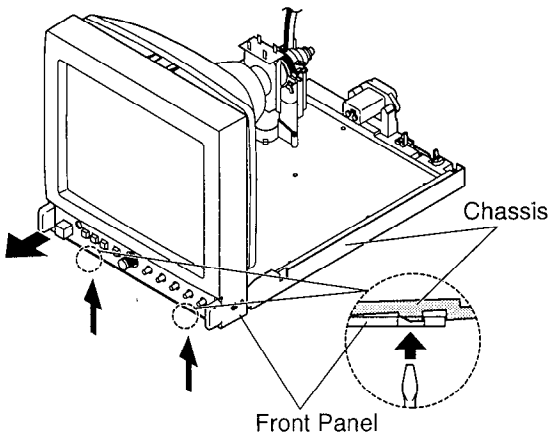
Caution:
- Never mechanically stress the neck of the picture tube not to damage it.

Replacement Procedure

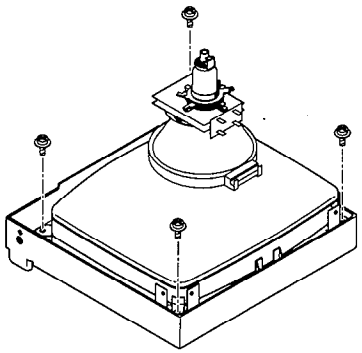
1. Removal
(1) Remove B- and W-P.C.Boards according to the section "Removal of B- and W-P.C.Boards".
(2) Remove the anode cap from the picture tube.
(3) Remove Y-P.C.Board from the picture tube
(4) Unscrew one screw per side of the front panel.



(5) Separate the front panel from the chassis while pushing and removing the hook portions of the 2 places.
(6) Disconnect the wires between the front panel and chassis.



(7) Unscrew the 4 screws fixing the picture tube.



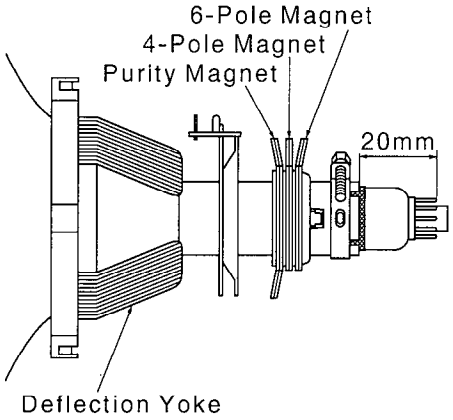
2. Installation

Install a new picture tube by the opposite procedure of the removal.

3. Adjustments Required

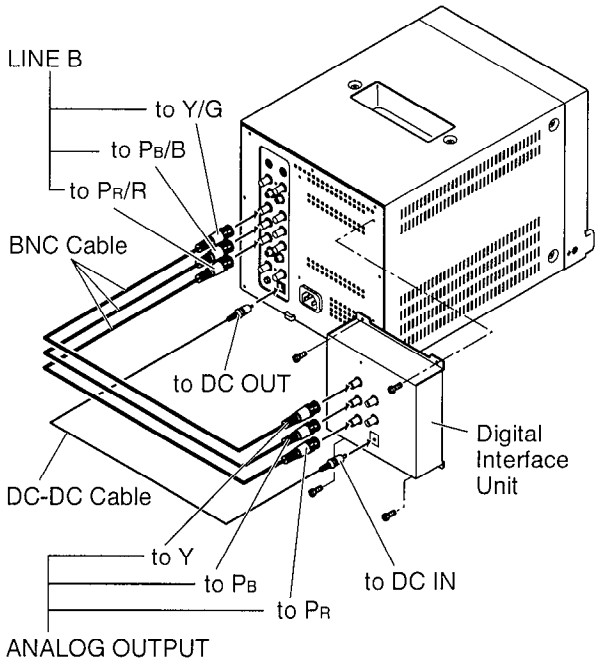
After replacing the picture tube, adjust every item in the chapter "Measurements and Adjustments".

Location of Magnets



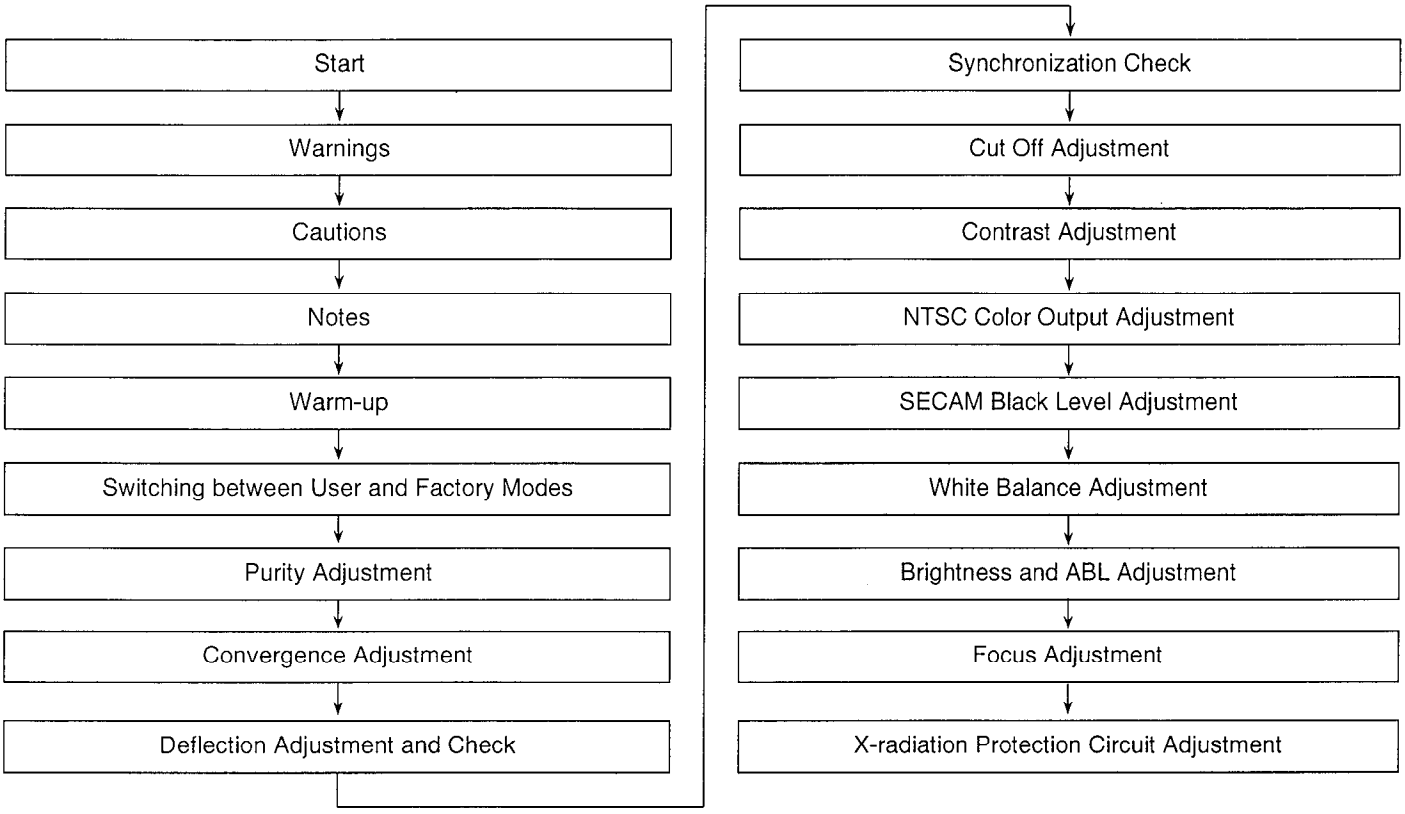
Installation of Digital Interface Unit (ET-SD06U, option)

(1) Install a digital interface unit in place with the 4 screws supplied with the unit.
(2) Connect the DC-DC cable supplied with the unit.
(3) Connect the 3 BNC cables supplied with the unit.



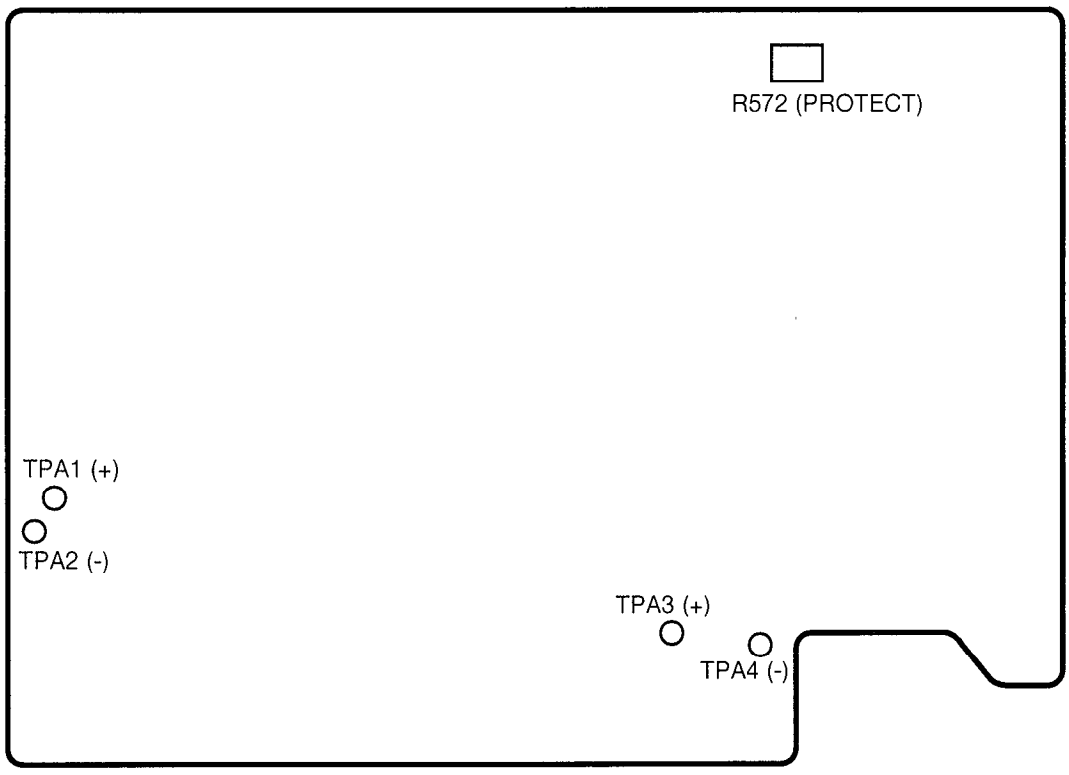
Measurements and Adjustments

Adjustment Procedure Flowchart

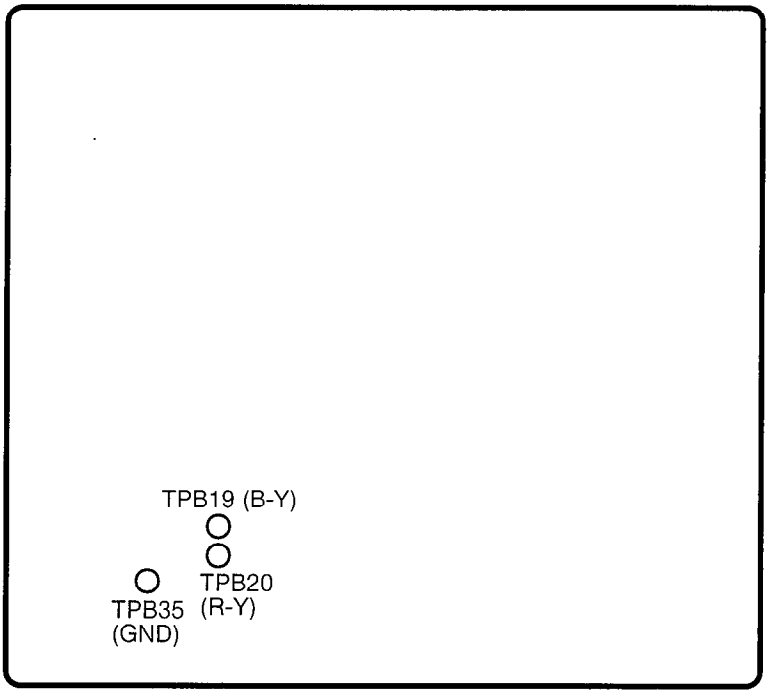


Location of Test Points and Adjustment Control

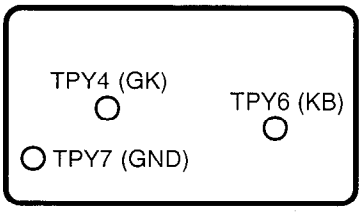
A-P.C.Board (Component Side)



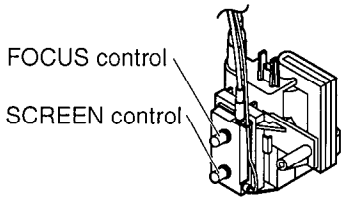
B-P.C.Board (Component Side)



Y-P.C.Board (Component Side)



Fly-back Transformer



Warnings

- Because this set has HOT and COLD sections in the power supply circuit, Never touch the HOT and COLD sections at the same time to prevent you from getting an electric shock.
- Always unplug the AC power cord plug from the AC line outlet before disassembling the chassis.

Cautions

- Never short-circuit between the HOT and COLD sections to prevent damage to the components.
- Never measure the HOT and COLD sections at the same time when using any measurement instrument.
- When a screwdriver is needed during adjustment, use a nonmetallic screwdriver to prevent an unexpected short circuit.

Notes

- This set needs a warm-up to stabilize each function, so operate the set to be adjusted over an hour before the adjustment.
- The AC power source voltage should be 120±2V and its distortion less than 3%.
- For the color difference signals, use a Y signal having sync signals and P_B and P_R signals no sync signals unless otherwise specified.
- Use the MENU/ENTER and ROTARY switches on the front panel to select and adjust a necessary item.
- For the front panel controls, refer to the chapter "Operation of Front Panel Controls".

Switching between User and Factory Modes

- User Mode → Factory Mode
  While pressing the SCAN switch, turn the ROTARY switch 3 steps clockwise, then 1 step counterclockwise, then 3 steps clockwise, and then 1 step counterclockwise.
- Factory Mode → User Mode
  While pressing the SCAN switch, turn the ROTARY switch 1 step clockwise, then 1 step counterclockwise, then 1 step clockwise, and then 1 step counterclockwise.

Purity Adjustment

1. Equipment to be used
Degaussing Coil
Microscope
RGB Signal Generator: LINE B
Digital Voltmeter: TPA1 (+) - TPA2 (-)

2. Adjustment Procedure
(1) Set the monitor to the FACTORY mode and then COLOR TEMP on the menu to 6500K.
(2) Fully degauss the front, both sides, and top of the picture tube with an external degaussing coil.
(3) Input a cross hatch pattern signal and adjust the convergence by horizontally and vertically positioning the static convergence magnet and deflection yoke.
(4) Adjust the BRIGHT and CONTRAST controls to obtain a digital voltmeter reading of 4.4±0.1V.
(5) Change the input signal to a 100% white pattern signal and adjust the purity magnet to obtain a uniform landing at each place of nearly 2cm from the right and left screen edges. At this time, if it is difficult to obtain correct purity, finely adjust the fore-and-aft position of the deflection yoke and its tilt and fine-tune the purity magnet.

Note:
- When adjusting the purity magnet, first set the adjustment ring with a small dilation and the other with no dilation to the same position at the top and then adjust them in symmetrical opposite directions each other.

(6) Display a red pattern and check its purity.
(7) Display a blue pattern and check its purity.
(8) Display the 100% white pattern and check its white quality.
(9) If there is a problem in step (6) through (8), repeat step (2) through (8) until its problem disappears.

Convergence Adjustment

1. Equipment to be used
RGB Signal Generator: LINE B

2. Adjustment Procedure
(1) Input a cross hatch pattern signal.
(2) Adjust the 4-pole magnet to merge the blue lines with the red ones in the middle section of the screen.

Note:
- For the location of the magnets, refer to the chapter "Picture Tube Replacement".

(3) Adjust the 6-pole magnet to merge the green lines with the red and blue ones merged in step (2) in the middle section of the screen.
(4) Fine-tune the deflection-yoke position to adjust the convergence in the entirety of the screen.
(5) Secure the deflection yoke with 3 wedges.

Warning:
- Never locate the wedges within 25mm of the end of the anode pad to prevent high-voltage surges.

Deflection Adjustment and Check

1. Equipment to be used
NTSC Signal Generator: LINE A
PAL Signal Generator: LINE A

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA: center (click position)
VOLUME (audio): minimum

3. Adjustment Procedure
(1) Input an NTSC monoscope pattern signal and check that the picture locks horizontally.
(2) Set the SCAN switch to the OVERSCAN mode.
(3) Set the monitor to the FACTORY mode and select DISPLAY REF from the menu.
(4) Adjust H POSI and V POSI on the DISPLAY REF menu to position the center of the picture at the center on the front of the picture tube.
(5) Adjust H SIZE and V SIZE on the DISPLAY REF menu to obtain a horizontal scale of 2.5±0.3 and a vertical scale of 2.0±0.3 as a screen size.
(6) Set the SCAN switch to the UNDERSCAN mode and check that the picture is fully displayed.
(7) Set the ASPECT/STD switch to the 16:9 mode and check that the vertical screen size is 103±5mm.
(8) Set the SCAN switch to the OVERSCAN mode and change the input signal to a PAL Philips pattern signal.
(9) Set the ASPECT/STD switch to the 4:3 mode and check that the center of the picture is positioned at the center on the front of the picture tube.
(10) Set the SCAN switch to the UNDERSCAN mode and check that the picture is fully displayed.
(11) Set the ASPECT/STD switch to the 16:9 mode and check that the vertical screen size is 103±5mm.

Synchronization Check

1. Equipment to be used
NTSC Signal Generator: LINE A
Frequency Counter: V terminal of deflection yoke

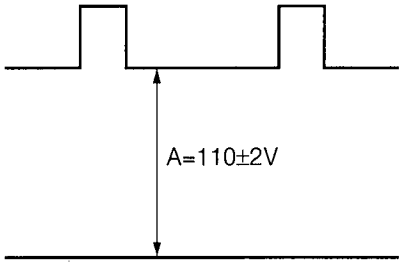
2. Adjustment Procedure
(1) Under no signal input, set the monitor to the FACTORY mode and then COUNTRY on the menu to USA.
(2) Input an NTSC signal and then no signal again.
(3) Check that the frequency counter reads 60.0±1.5Hz.

Cut Off Adjustment

1. Equipment to be used
NTSC Signal Generator: LINE A
Oscilloscope: TPY4 (KG) - TPY7 (GND)

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA:
center (click position)
VOLUME (audio): minimum

3. Adjustment Procedure
(1) Input a cross hatch pattern signal.
(2) Set the SCREEN control to its minimum.
(3) To display a horizontal single line, set the monitor to the FACTORY mode, then V COMPRESS on the menu to ON, and then select MENU OFF.
(4) Adjust the BRIGHT control to obtain A=110±2V.



(5) Adjust the SCREEN control so that the horizontal single line can be barely visible.

Note:
- After this adjustment, never turn the SCREEN control.

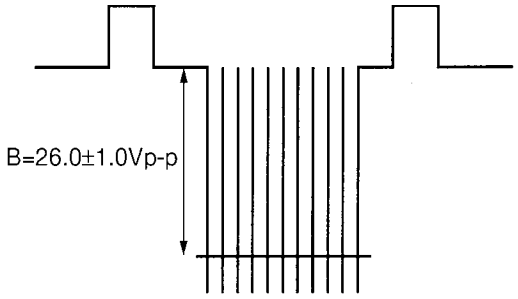
(6) To cancel the horizontal single line, press the MENU/ENTER switch.

Contrast Adjustment

1. Equipment to be used
NTSC Signal Generator: LINE A
RGB Signal Generator: LINE B
Oscilloscope: TPY4 (KG) - TPY7 (GND)

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA:
center (click position)
VOLUME (audio): minimum

3. Adjustment Procedure
(1) Input an NTSC cross hatch pattern signal and check that the black level is 110±5V at TPY4 (KG).
(2) Set the monitor to the FACTORY mode, then select PICTURE REF from the menu, and then adjust CONTRAST on the PICTURE REF menu to obtain B=26.0±1.0Vp-p.
(3) Input an RGB cross hatch pattern signal.
(4) Adjust RGB-CONTRAST on the PICTURE REF menu to obtain B=26.0±1.0Vp-p.

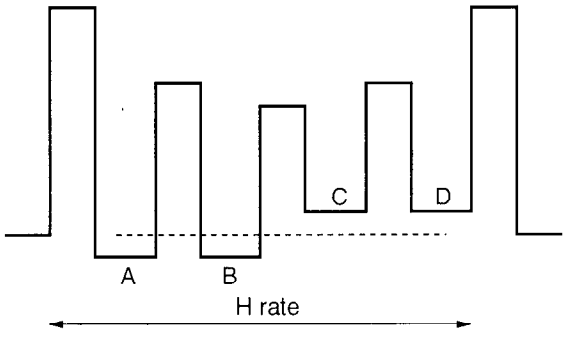


NTSC Color Output Adjustment

1. Equipment to be used
NTSC Signal Generator: LINE A
PAL Signal Generator: LINE A
Oscilloscope: TPY6 (KB) - TPY7 (GND)

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA:
center (click position)
VOLUME (audio): minimum

3. Adjustment Procedure
(1) Input an NTSC full field color bar signal.
(2) Set the monitor to the FACTORY mode, then select PICTURE REF from the menu, and then adjust CHROMA and PHASE on the PICTURE REF menu to align the vertical positions of A, B, C, and D of the pulse below by using the doted line as a guideline.
At this time, adjust CHROMA for A and D and PHASE for B and C.



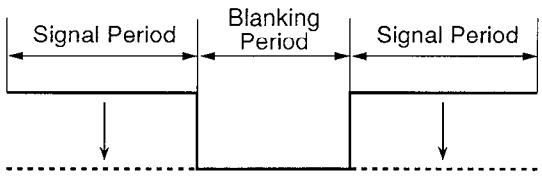
(3) Input a PAL full field color bar signal.
(4) Check that the variations of the vertical positions of A, B, C, and D are within 1.0V

SECAM Black Level Adjustment

1. Equipment to be used
SECAM Signal Generator: LINE A
Oscilloscope: TPB19 (B-Y) - TPB35 (GND)
TPB20 (R-Y) - TPB35 (GND)

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA:
center (click position)
VOLUME (audio): minimum

3. Adjustment Procedure
(1) Input a SECAM color bar signal.
(2) Connect an oscilloscope to TPB19 (B-Y).
(3) Set the monitor to the FACTORY mode, then select PICTURE REF from the menu, and then adjust SECAM B-Y OUT on the PICTURE REF menu to level the color signal periods with the H blanking ones.
(4) Change the connection of the oscilloscope to TPB20 (R-Y).
(5) Adjust SECAM R-Y OUT on the PICTURE REF menu to level the color signal periods with the H blanking ones.



* Adjust for the same level.

White Balance Adjustment

1. Equipment to be used
NTSC Signal Generator: LINE A
Color Analyzer
Degaussing Coil

2. Initial Setting
CHROMA: center (click position)

3. Preparations
(1) Input a window pattern signal.
(2) Fully degauss the front, both sides, and top of the picture tube with an external degaussing coil.
(3) Attach the light receiving element of a color analyzer to the front of the picture tube.

Note:
- At this time, be sure not to receive extraneous light.
- The cut off adjustment must be completed before this adjustment.

4. 6500K Adjustment
(1) Set the monitor to the FACTORY mode and then COLOR TEMP on the menu to 6500K.
(2) Adjust the input signal to obtain a brightness of Y=5.0±1.5nit.
(3) Adjust R-BIAS and B-BIAS to obtain a color temperature of x=313±3 and y=329±3.
(4) Adjust the input signal to obtain a brightness of Y=250±20nit.
(5) Adjust R-GAIN and B-GAIN to obtain a color temperature of x=313±3 and y=329±3.
(6) Repeat step (2) through (5) until the color temperatures become the specified values under the above both conditions and terminate this adjustment in step (3).

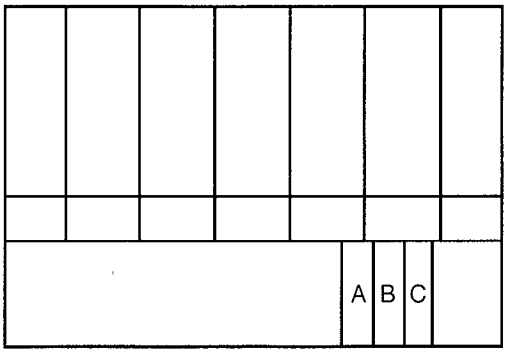
5. 9300K Adjustment
(1) Set the monitor to the FACTORY mode and then COLOR TEMP on the menu to 9300K.
(2) Adjust this item in a procedure similar to step 4 to obtain a color temperature of x=281±3 and y=311±3.

Brightness and ABL Adjustment

1. Equipment to be used
NTSC Signal Generator: LINE A
Digital Voltmeter: TPA1 (+) - TPA2 (-)

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA:
center (click position)

3. Adjustment Procedure
(1) Input an SMPTE color bar signal.
(2) Set the monitor to the FACTORY mode, then select PICTURE REF from the menu, and then adjust BRIGHT on the PICTURE REF menu to set the black level to the point that the B portion starts to blend in with the A and C portions.



(3) Input a monoscope pattern signal.
(4) Set the CONTRAST and BRIGHT controls to their maximums and check that the digital voltmeter reads 4.4±0.4V.
(5) Return the CONTRAST and BRIGHT controls to their center click positions.

Focus Adjustment

1. Equipment to be used
NTSC Signal Generator: LINE A

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA: center (click position)
VOLUME (audio): minimum

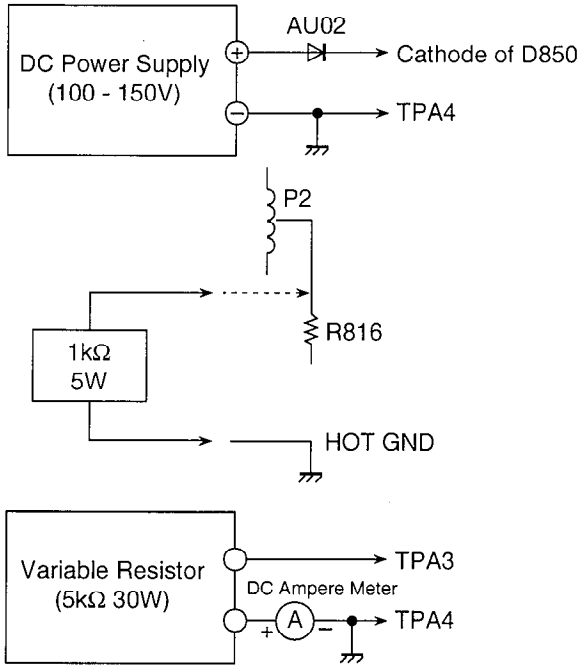
3. Adjustment Procedure
(1) Input a monoscope pattern signal.
(2) Adjust the FOCUS control to obtain correct focus in the middle and periphery of the screen.

X-radiation Protection Circuit Adjustment

1. Equipment to be used
PAL Signal Generator: LINE A
High-voltage Meter: picture tube anode - COLD GND
Digital Voltmeter: TPA1 (+) - TPA2 (-)
DC Power Supply (100-150V): D850 cathode (+) - TPA4 (-)
1kΩ 5W Resistor: T802 P2 side of R816 - HOT GND
5kΩ 30W Variable Resistor: TPA3 - DC ampere meter (+)
DC Ampere Meter: variable resistor (+) - TPA4 (-)

2. Initial Settings
CONTRAST, BRIGHT, PHASE, CHROMA: center (click position)
VOLUME (audio): minimum
R572 (PROTECT, A-P.C.Board): counterclockwise fully
H SIZE, SCREEN control: correctly adjusted condition

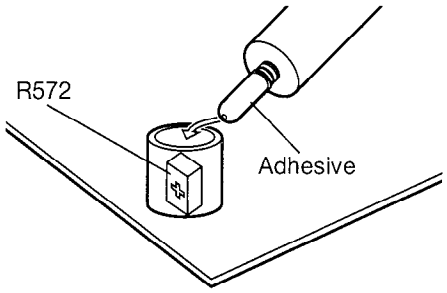
3. Adjustment Procedure
(1) Input a PAL black level signal.
(2) Connect a DC power supply, 1kΩ 5W resistor, 5kΩ 30W variable resistor, and DC ampere meter as shown below and set the variable resistor to its center position.



(3) Turn on the monitor.
(4) Set the SCAN switch to the OVERSCAN mode.
(5) Set the CONTRAST and BRIGHT controls to their minimums to allow the screen to become black.
(6) Check that the high voltage is 22.0±1.5kV.
(7) Change the input signal to a Philips pattern signal.
(8) Adjust the CONTRAST and BRIGHT controls to obtain a digital voltmeter reading of 3.80±0.05V.
(9) Adjust the 5kΩ 30W variable resistor to obtain a DC ampere meter reading of 53mA.
(10) Turn on the DC power supply and adjust it to obtain a high voltage of 24.5±0.3kV.
(11) Set the digital voltmeter reading to 3.80±0.05V.
(12) Turn R572 (PROTECT, A-P.C.Board) clockwise gradually until a shutdown occurs and stop it at the starting position of the shutdown.

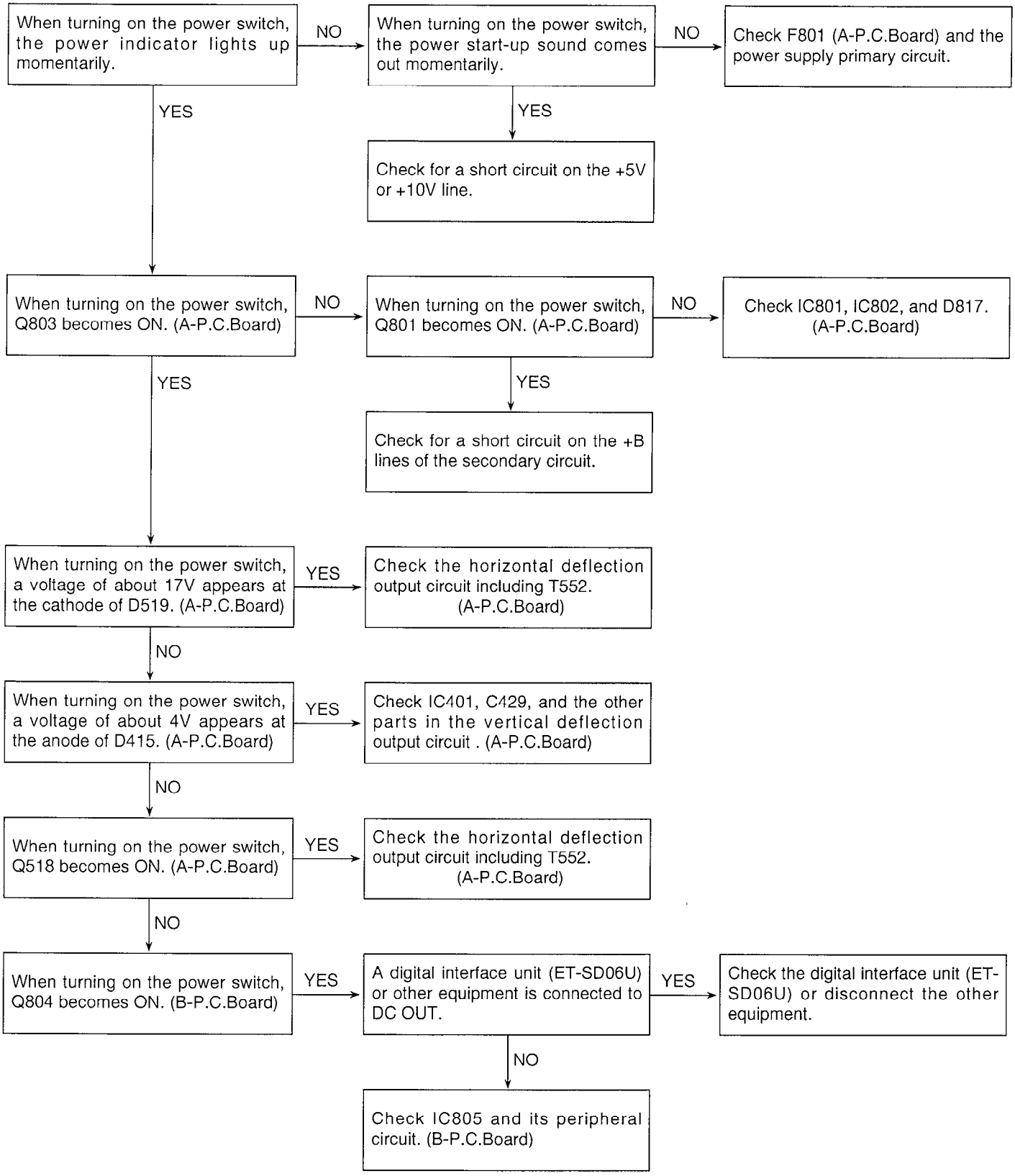
Note:
- A shutdown means that the high voltage vanishes and the raster stops.

(13) Minimize the DC power supply voltage gradually and turn it off.
(14) Turn off the monitor and turn it on again a few seconds later.
(15) Turn on the DC power supply again, increase its output voltage gradually, and check that a shutdown occurs at the high voltage of 24.5±0.3kV and the digital voltmeter reading of 3.8±0.05V. If not, follow step (8) through (14) again.
(16) Turn off the monitor and disconnect the DC power supply, 1kΩ 5W resistor, 5kΩ 30W variable resistor, and DC ampere meter.
(17) Cover R572 with a sleeve and secure it in place with an adhesive as shown below.

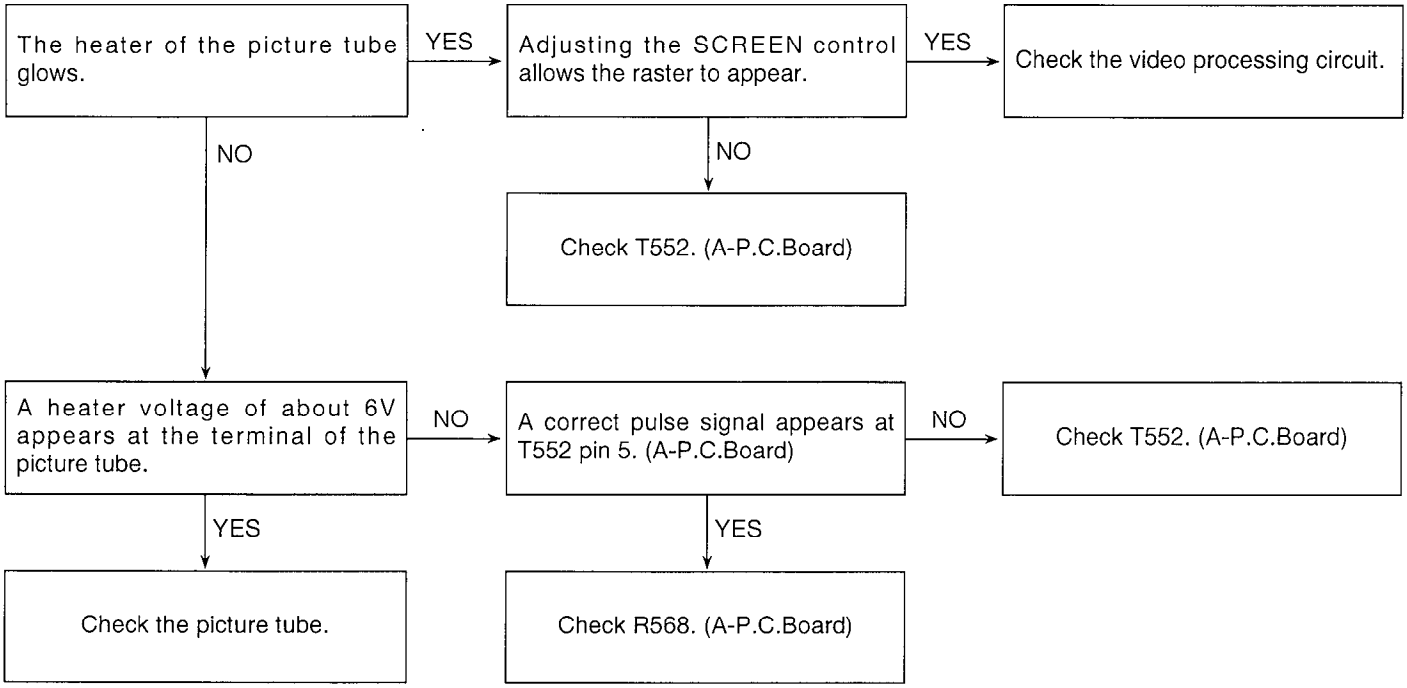


Troubleshooting

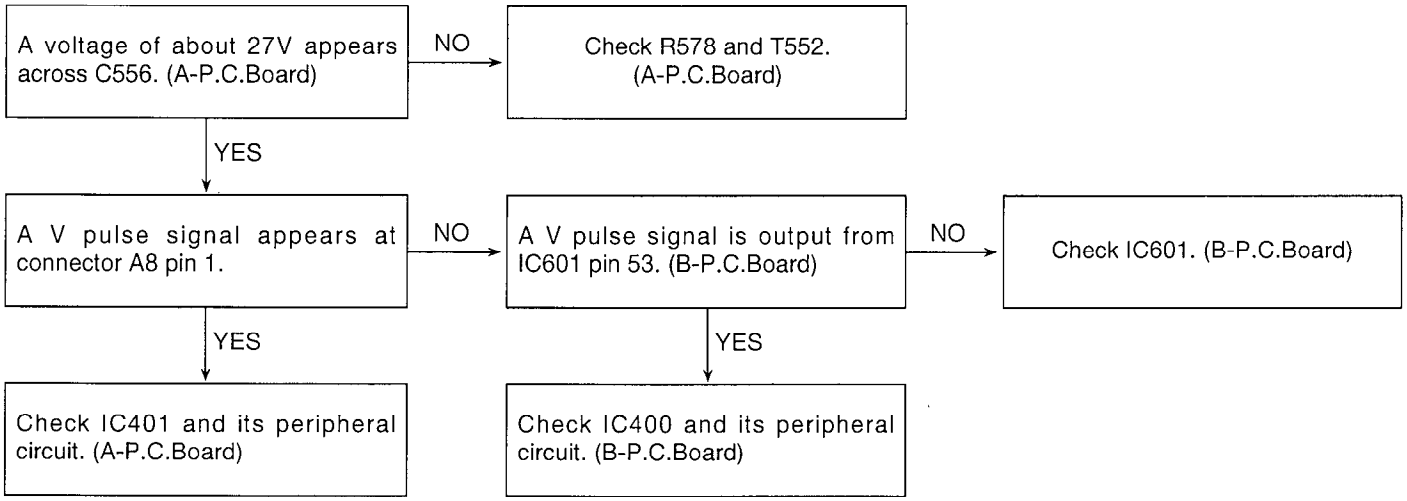
The power is not turned on


When turning on the power switch, the power indicator lights up momentarily.
NO
When turning on the power switch, the power start-up sound comes out momentarily.
NO
Check F801 (A-P.C.Board) and the power supply primary circuit.
YES
YES
Check for a short circuit on the +5V or +10V line.
When turning on the power switch, Q803 becomes ON. (A-P.C.Board)
NO
When turning on the power switch, Q801 becomes ON. (A-P.C.Board)
NO
Check IC801, IC802, and D817. (A-P.C.Board)
YES
YES
Check for a short circuit on the +B lines of the secondary circuit.
When turning on the power switch, a voltage of about 17V appears at the cathode of D519. (A-P.C.Board)
YES
Check the horizontal deflection output circuit including T552. (A-P.C.Board)
NO
When turning on the power switch, a voltage of about 4V appears at the anode of D415. (A-P.C.Board)
YES
Check IC401, C429, and the other parts in the vertical deflection output circuit . (A-P.C.Board)
NO
When turning on the power switch, Q518 becomes ON. (A-P.C.Board)
YES
Check the horizontal deflection output circuit including T552. (A-P.C.Board)
NO
When turning on the power switch, Q804 becomes ON. (B-P.C.Board)
YES
A digital interface unit (ET-SD06U) or other equipment is connected to DC OUT.
YES
Check the digital interface unit (ET-SD06U) or disconnect the other equipment.
NO
Check IC805 and its peripheral circuit. (B-P.C.Board)

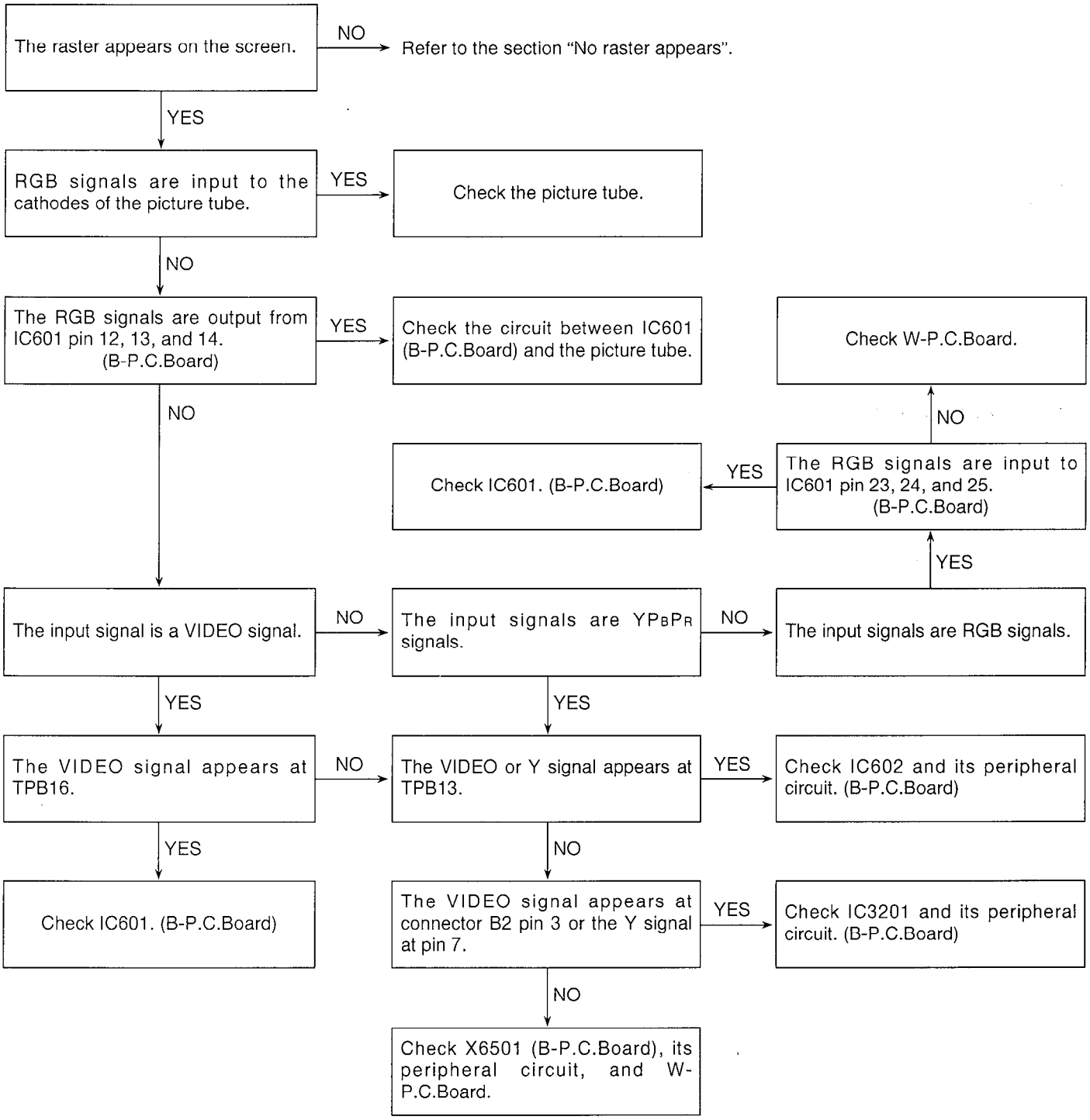
No raster appears



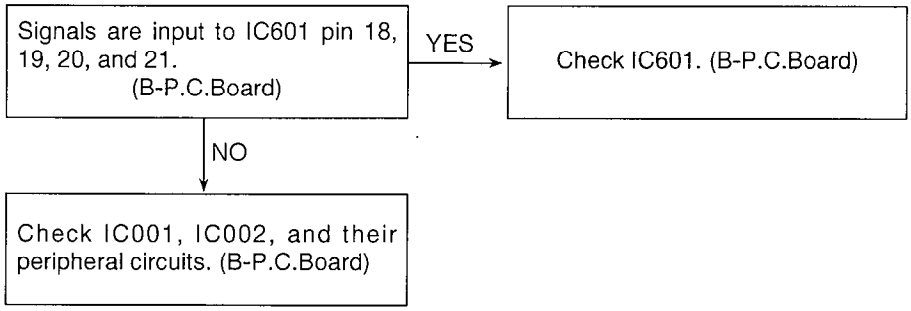
The raster is a horizontal single line


A voltage of about 27V appears across C556. (A-P.C.Board)
NO
Check R578 and T552. (A-P.C.Board)
YES
A V pulse signal appears at connector A8 pin 1.
NO
A V pulse signal is output from IC601 pin 53. (B-P.C.Board)
NO
Check IC601. (B-P.C.Board)
YES
YES
Check IC401 and its peripheral circuit. (A-P.C.Board)
Check IC400 and its peripheral circuit. (B-P.C.Board)

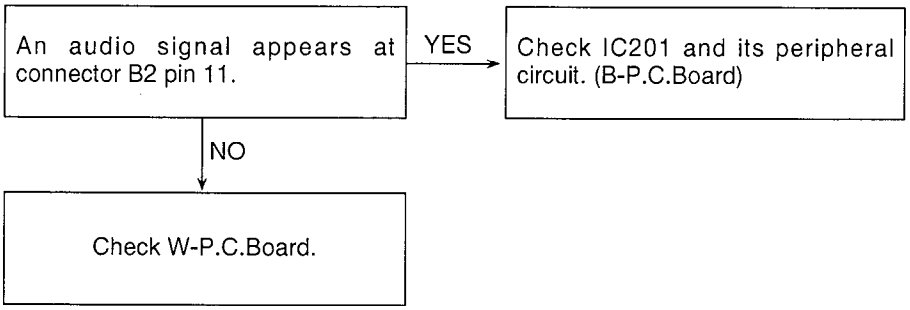
No picture appears


The raster appears on the screen.
NO
Refer to the section "No raster appears".
YES
RGB signals are input to the cathodes of the picture tube.
YES
Check the picture tube.
NO
The RGB signals are output from IC601 pin 12, 13, and 14. (B-P.C.Board)
YES
Check the circuit between IC601 (B-P.C.Board) and the picture tube.
Check W-P.C.Board.
NO
NO
Check IC601. (B-P.C.Board)
YES
The RGB signals are input to IC601 pin 23, 24, and 25. (B-P.C.Board)
YES
The input signal is a VIDEO signal.
NO
The input signals are YPBPR signals.
NO
The input signals are RGB signals.
YES
YES
The VIDEO signal appears at TPB16.
NO
The VIDEO or Y signal appears at TPB13.
YES
Check IC602 and its peripheral circuit. (B-P.C.Board)
YES
NO
Check IC601. (B-P.C.Board)
The VIDEO signal appears at connector B2 pin 3 or the Y signal at pin 7.
YES
Check IC3201 and its peripheral circuit. (B-P.C.Board)
NO
Check X6501 (B-P.C.Board), its peripheral circuit, and W-P.C.Board.

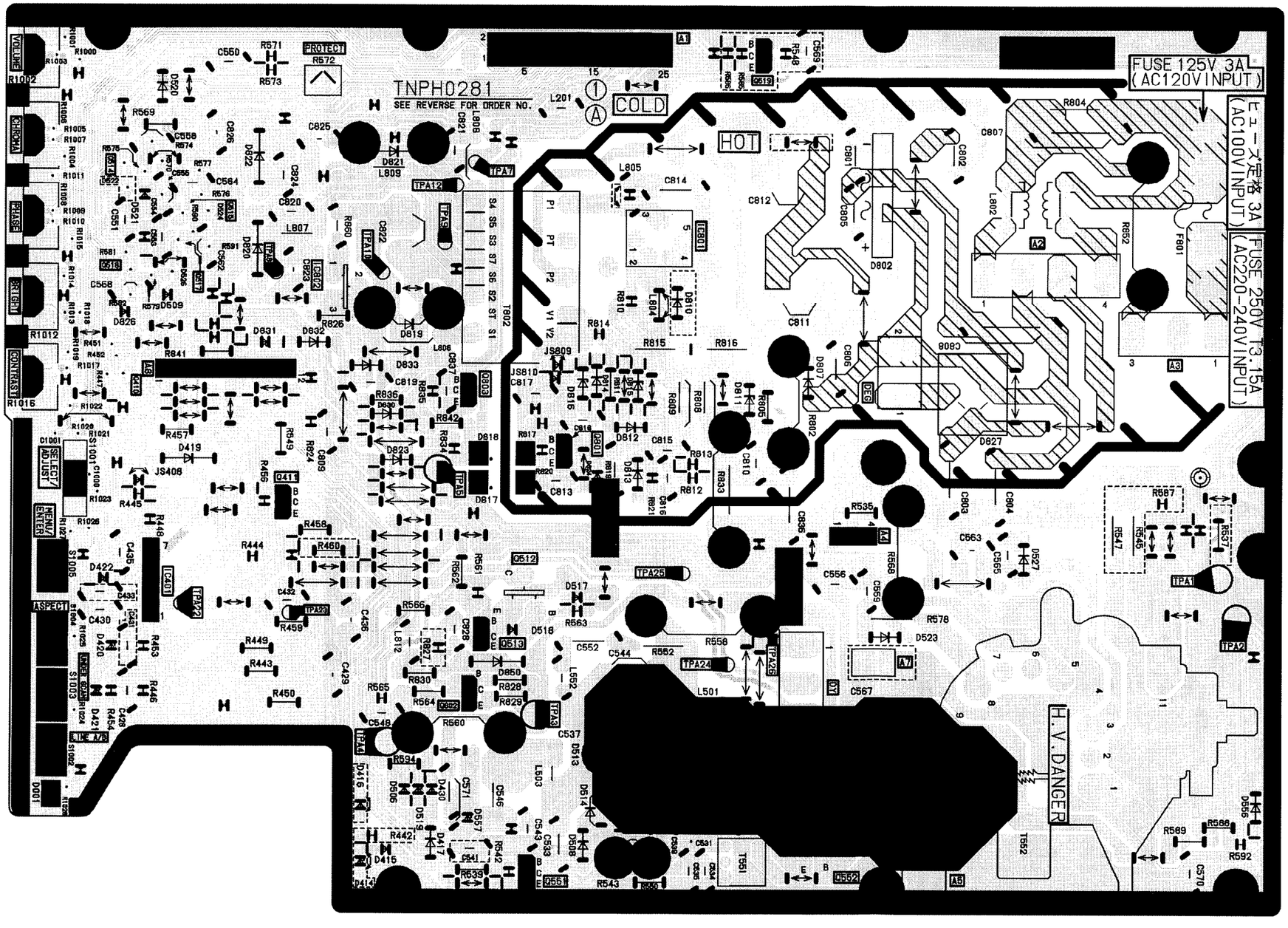
No on-screen display appears


Signals are input to IC601 pin 18, 19, 20, and 21. (B-P.C.Board)
YES
Check IC601. (B-P.C.Board)
NO
Check IC001, IC002, and their peripheral circuits. (B-P.C.Board)

No sound comes out



A-P.C.Board TNPH0281
(Foil Side)



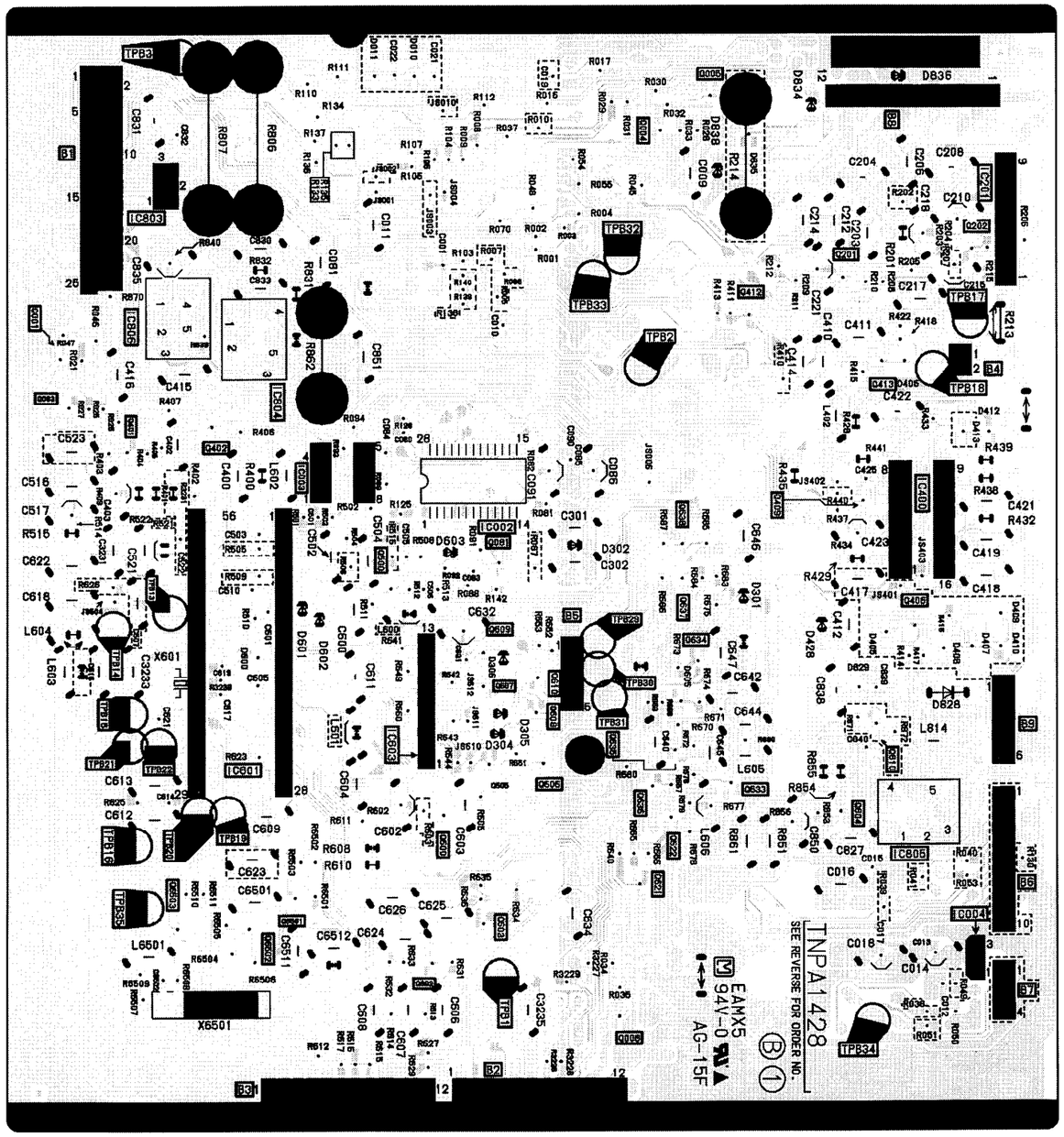
A-P.C.Board(Foil Side)	
IC	
IC401	B-1
IC801	D-4
IC802	D-2
TRANSISTOR	
Q512	B-3
Q513	B-3
Q514	E-1
Q515	D-2
Q517	D-2
Q518	D-1
Q551	A-4
Q552	A-5
Q801	C-4
Q802	B-3
Q803	C-3
TP	
TPA1	B-7
TPA2	B-7
TPA3	B-3
TPA4	B-3
TPA5	C-3

ADDRESS INFORMATION

B-P.C.Board TXN/B1MZKZ
(Foil Side)

B-P.C.Board(Foil Side)													
IC		IC805	B-5	Q202	E-5	Q606	B-3	Q636	B-3	TPB13	C-1	TPB29	C-3
IC002	C-3	IC806	D-1	Q401	D-1	Q607	C-3	Q637	C-4	TPB14	C-1	TPB30	C-3
IC003	D-2	TRANSISTOR		Q402	D-2	Q608	B-3	Q638	C-4	TPB15	B-1	TPB31	B-3
IC004	A-5	Q001	D-1	Q409	C-4	Q609	C-3	Q6501	A-2	TPB16	B-1	TPB32	D-3
IC201	E-5	Q003	D-1	Q412	D-4	Q610	C-3	Q6502	A-2	TPB17	D-5	TPB33	D-3
IC400	C-5	Q004	E-3	Q413	D-4	Q621	B-3	Q6503	B-1	TPB18	D-5	TPB34	A-4
IC601	B-2	Q005	E-4	Q500	C-2	Q622	B-4	TP		TPB19	B-2	TPB35	B-1
IC603	B-2	Q006	A-3	Q600	B-3	Q633	B-4	TPB1	A-3	TPB20	B-1		
IC803	E-1	Q081	C-3	Q602	A-2	Q634	C-4	TPB2	D-3	TPB21	B-1		
IC804	D-2	Q201	E-4	Q603	B-3	Q635	B-3	TPB3	E-1	TPB22	B-1		

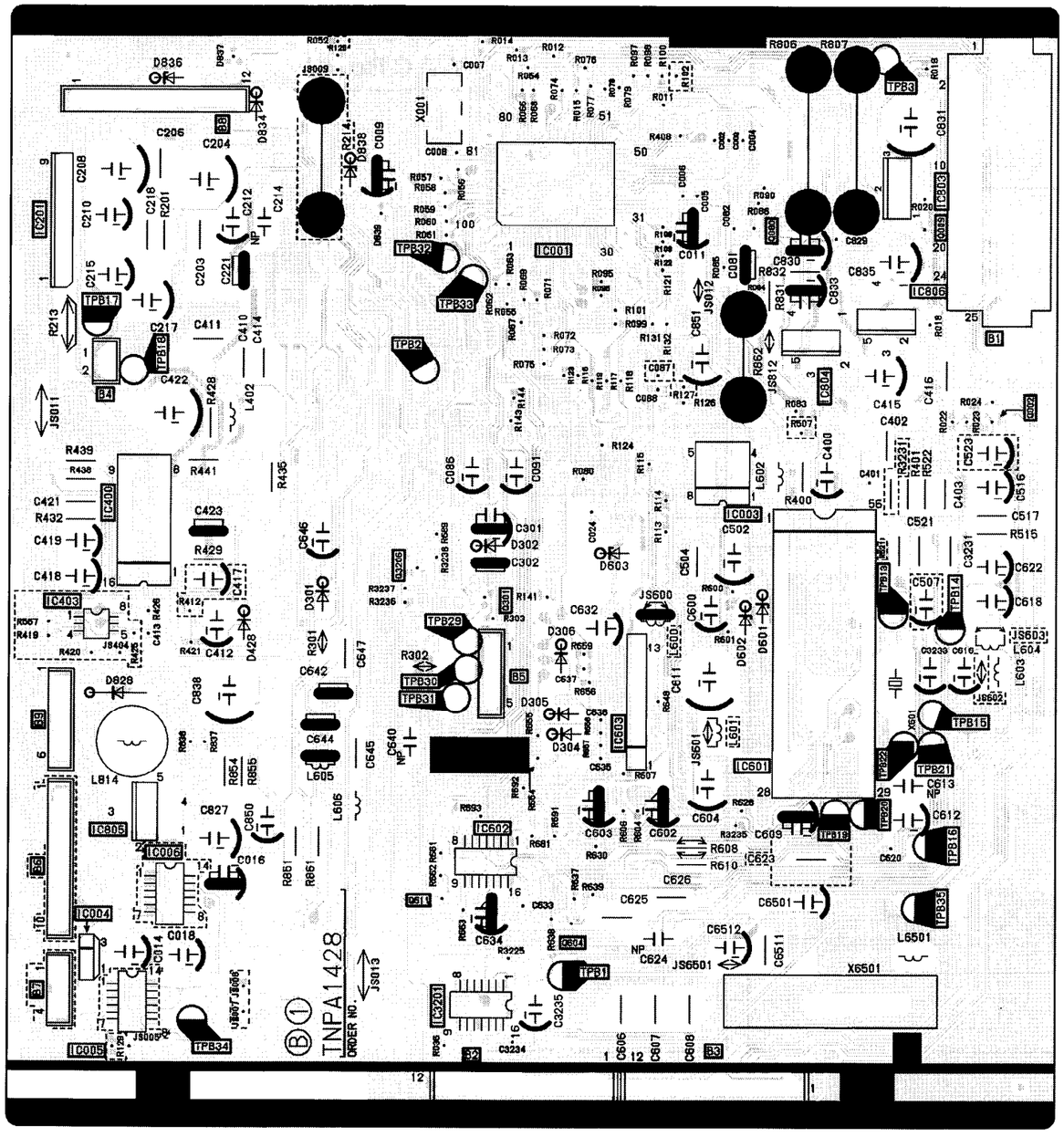
ADDRESS INFORMATION



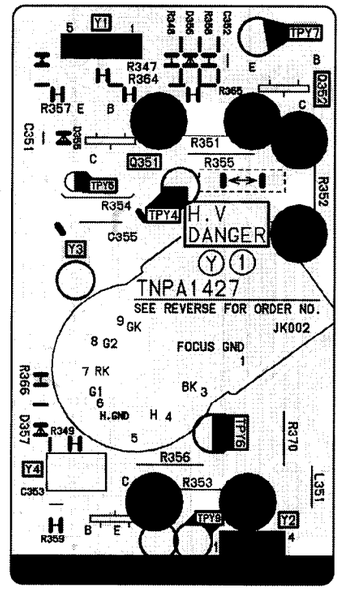
B-P.C.Board TXN/B1MZKZ
(Component Side)

B-P.C.Board(Component Side)															
IC		IC603	B-3	Q080	E-4	TPB3	E-5	TPB20	B-4	TPB34	A-1				
IC001	E-3	IC803	E-5	Q301	C-3	TPB13	C-5	TPB21	B-5	TPB35	B-5				
IC003	D-4	IC804	D-4	Q604	A-3	TPB14	C-5	TPB22	B-5						
IC004	A-1	IC805	B-1	Q611	B-2	TPB15	B-5	TPB29	C-3						
IC201	E-1	IC3201	A-3	Q3206	C-2	TPB16	B-5	TPB30	C-3						
IC400	C-1	TRANSISTOR		TP		TPB17	D-1	TPB31	B-3						
IC601	B-4	Q002	D-5	TPB1	A-3	TPB18	D-1	TPB32	D-3						
IC602	B-3	Q009	E-5	TPB2	D-2	TPB19	B-4	TPB33	D-3						

ADDRESS INFORMATION



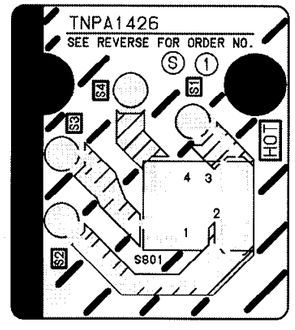
Y-P.C.Board TNPA1427
(Foil Side)



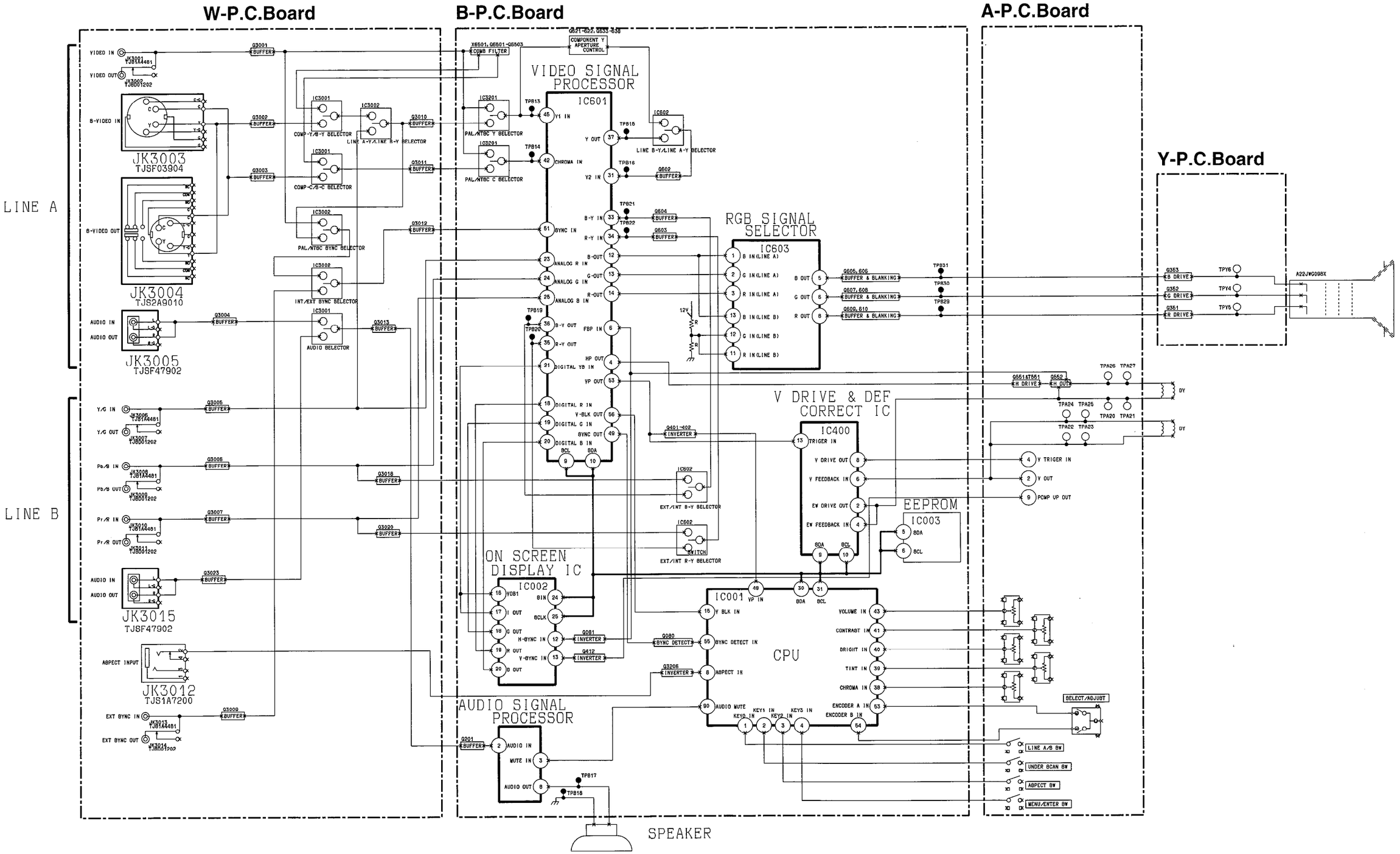
Y-P.C.Board(Foil Side)	
TRANSISTOR	
Q351	E-7
Q352	E-8
Q353	C-7
TP	
TPY4	E-7
TPY6	D-7
TPY7	E-7
TPY8	C-7
TPY9	C-7

ADDRESS INFORMATION

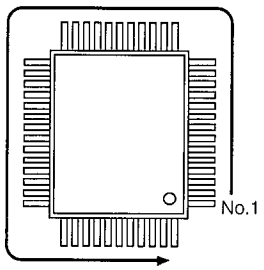
S-P.C.Board TNPA1426
(Foil Side)



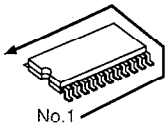
Block Diagram



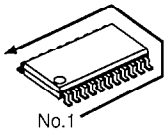
Terminal guide of ICs and transistors



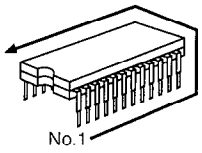
MB90F553A 100 Pin



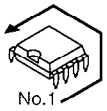
TC4053BF 16 Pin



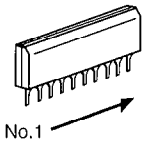
MB90096-129 28 Pin
MC14066BF 14 Pin



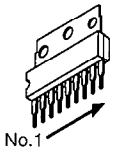
TA8859AP 16Pin
TB1237AN 56Pin



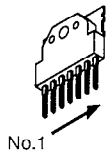
TVRJ299 8 Pin



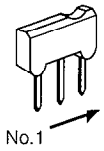
AN5862K 13Pin



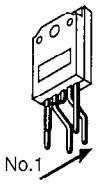
AN5265 9 Pin



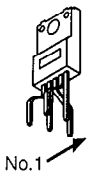
LA7832 7 Pin



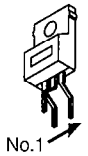
MN1280R 3Pin



STRF6653LF53 5 Pin

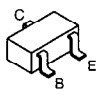


SI-3090CA 5 Pin
SI-3120CA 5 Pin
SI-8050S 5 Pin

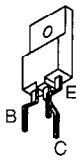


SE115N 3 Pin

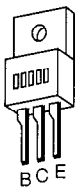
UPC2405AHF 3 Pin



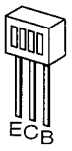
2SB709A
2SB710A
2SD601AR



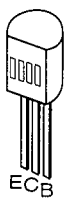
2SD2499



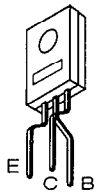
2SD1266A



2SA1309A
2SC3311A



2SC3940A



2SD3063

Schematic Diagram for Model BT-S915DA

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS.
WHEN SERVICING, IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

Notes:

1. **Resistor**
   All the resistors are carbon 1/4W resistors, unless marked as follows:
   The unit of resistance is an OHM [Ω] (K=1,000 M=1,000,000).

   ○ : Nonflammable
   △ : Solid
   ⊠ : Wire Wound
   ⊠ : Metal Oxide
   ● : Metal Film
   ⊗ : Fuse

2. **Capacitor**
   All the capacitors are ceramic 50V capacitors, unless marked as follows:
   The unit of capacitance is a μF, unless otherwise noted.

   ⊗ : Temperature Compensation
   Ⓜ : Polyester
   ⓜ : Metalized Polyester
   ⊠ : Polypropylene
   : Electrolytic
   NP : Bipolar
   Ⓣ : Dipped Tantalum
   Ⓩ : Z-Type

3. **Coil**
   The unit of inductance is a μH, unless otherwise noted.

4. **Test Point**
   ● : Test Point

5. **Voltage Measurement**
   The voltages are measured by an electronic voltmeter receiving the studio color bar signal when all the customer's controls are set to the standard condition.

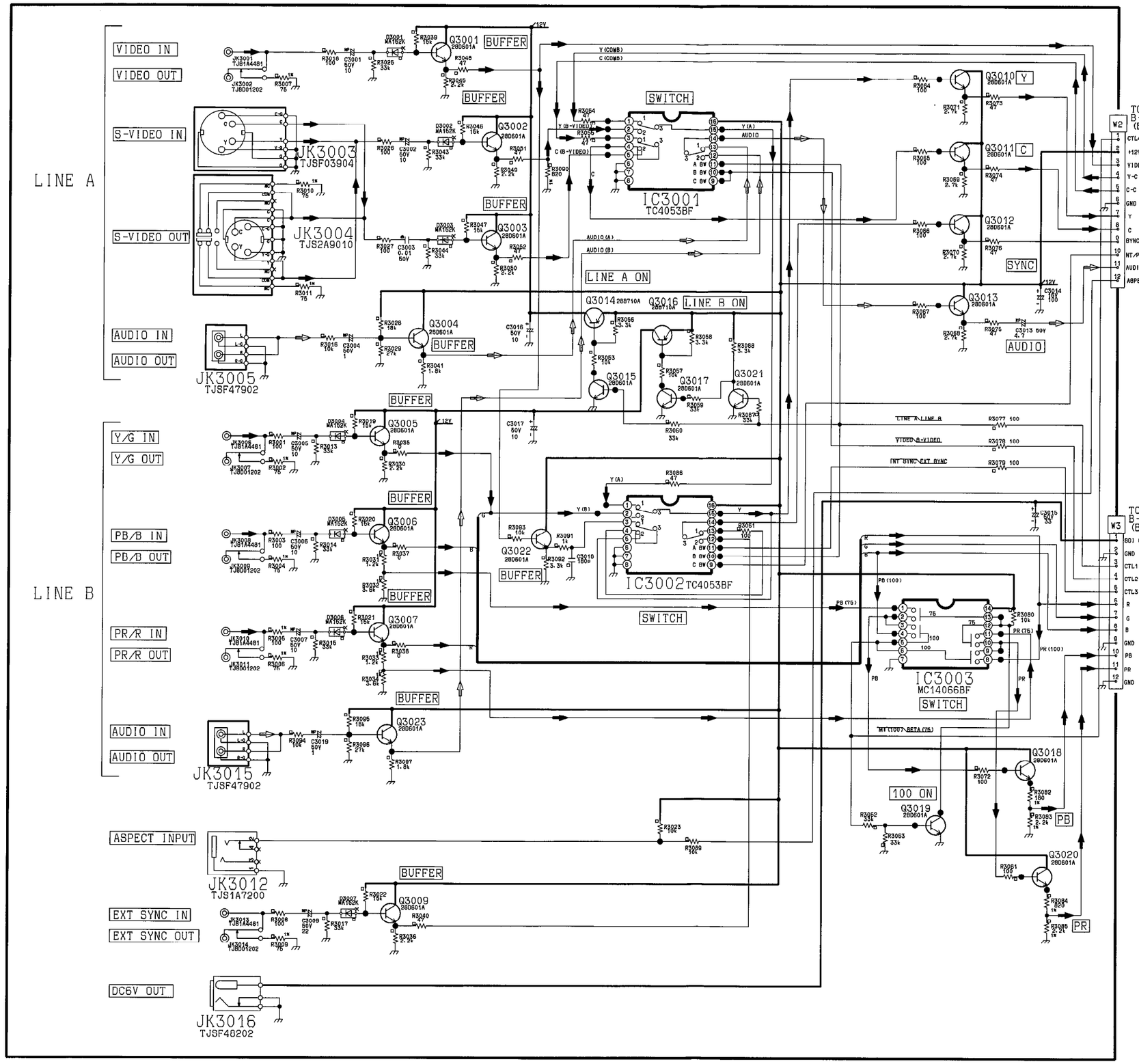
6. **This schematic diagram is the latest at the time of printing and the subject to change without notice.**

7. Positive Voltage Lines
   Audio Signal
   Video Signal

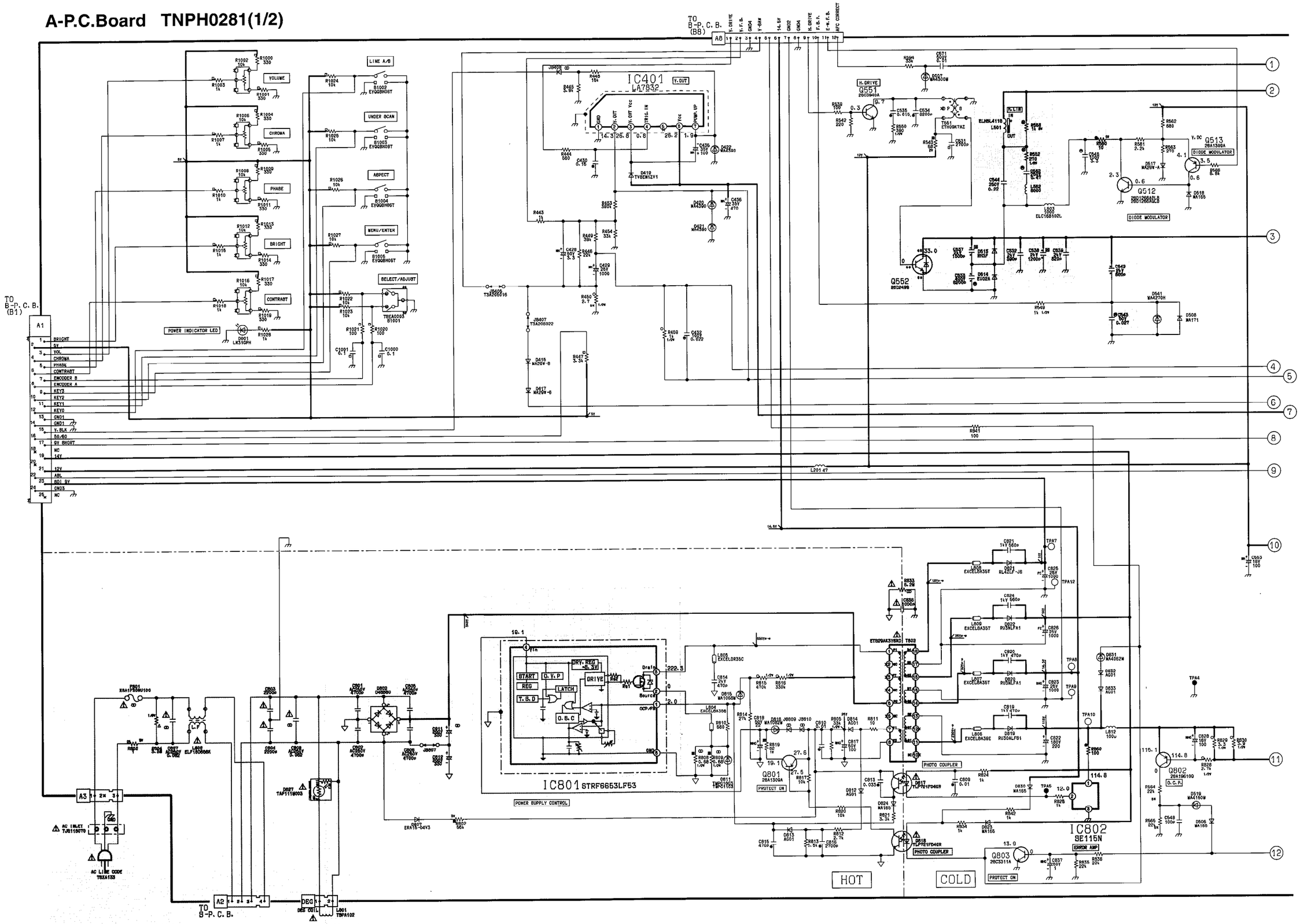
Note:
The power Circuit board contains a circuit area using a separate power supply to isolate the ground connection. The circuit is defined by HOT and COLD indications in the schematic diagram. Take the following precautions.

Precautions:
1. Never touch the hot part or the hot and cold parts at the same time, or you may get an electric shock.
2. Never short-circuit the hot and cold circuits, or the fuse may blow and the parts may break.
3. Never connect an instrument such as an oscilloscope to the hot and cold circuits simultaneously, or the fuse may below. Connect the ground of instruments to the ground of the circuit being measured.
4. Make sure to unplug the power cord from the power outlet before removing the chassis.

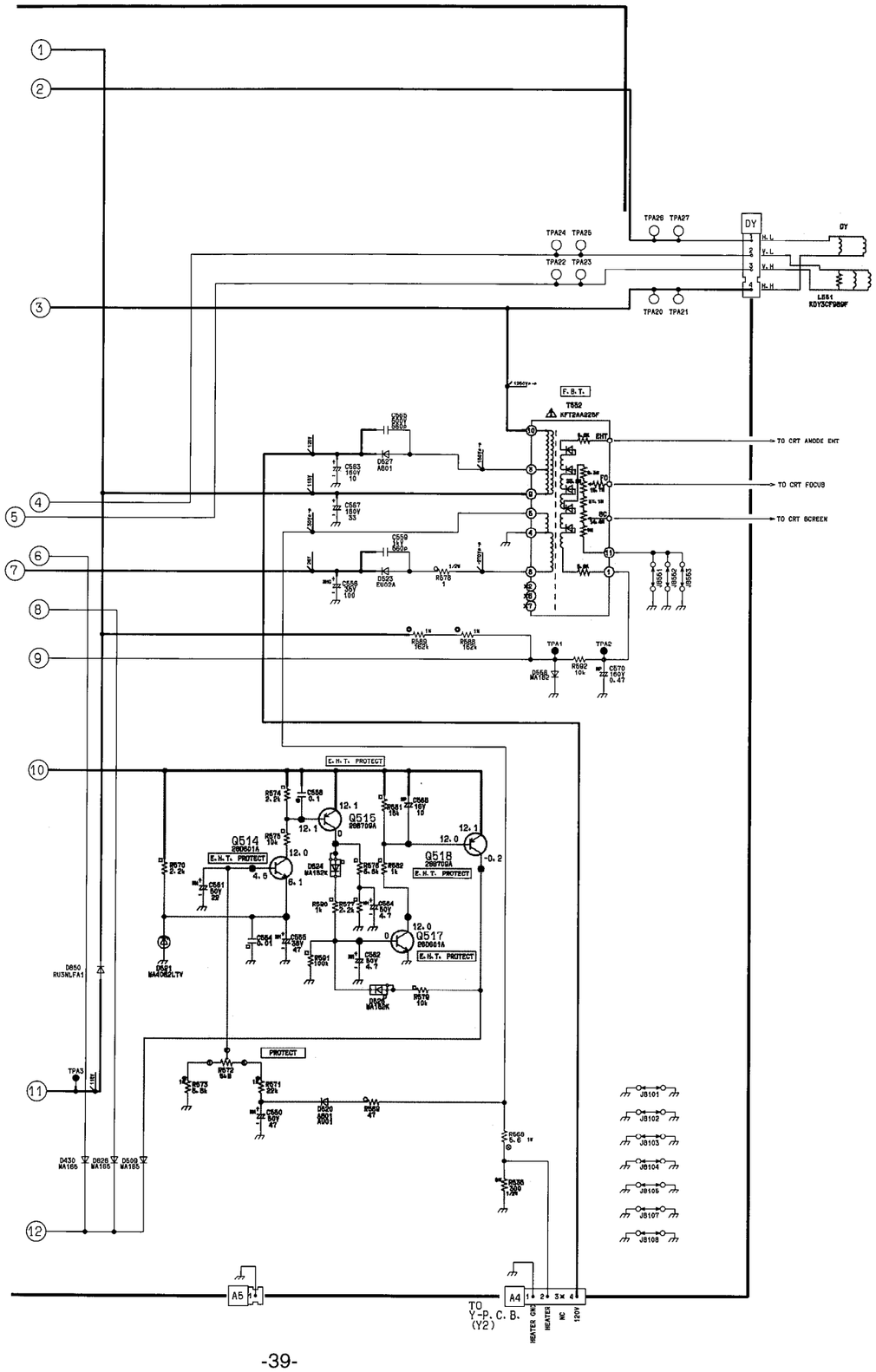
N-P.C.Board TXN/W1MZKZ



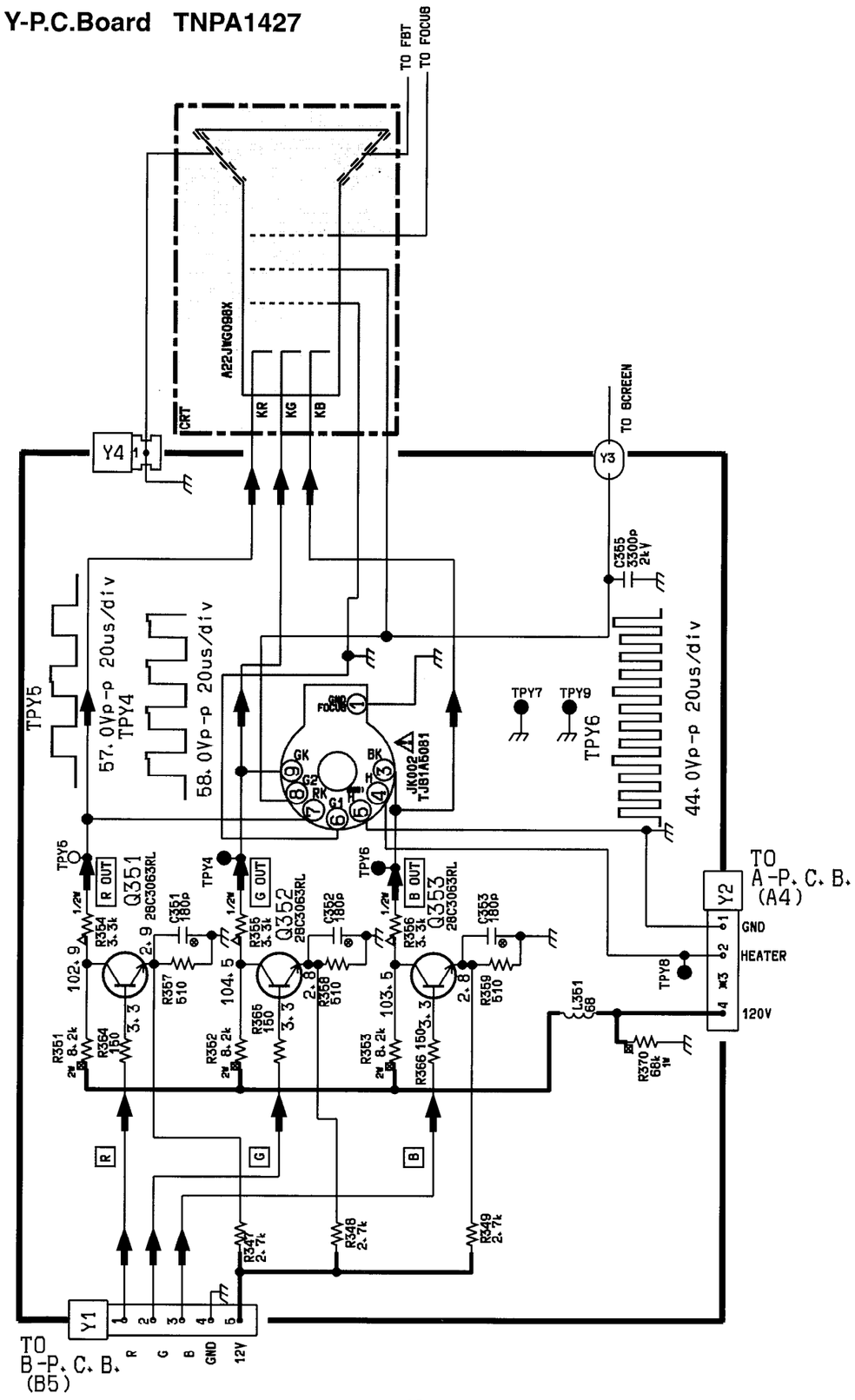
A-P.C.Board TNPH0281(1/2)



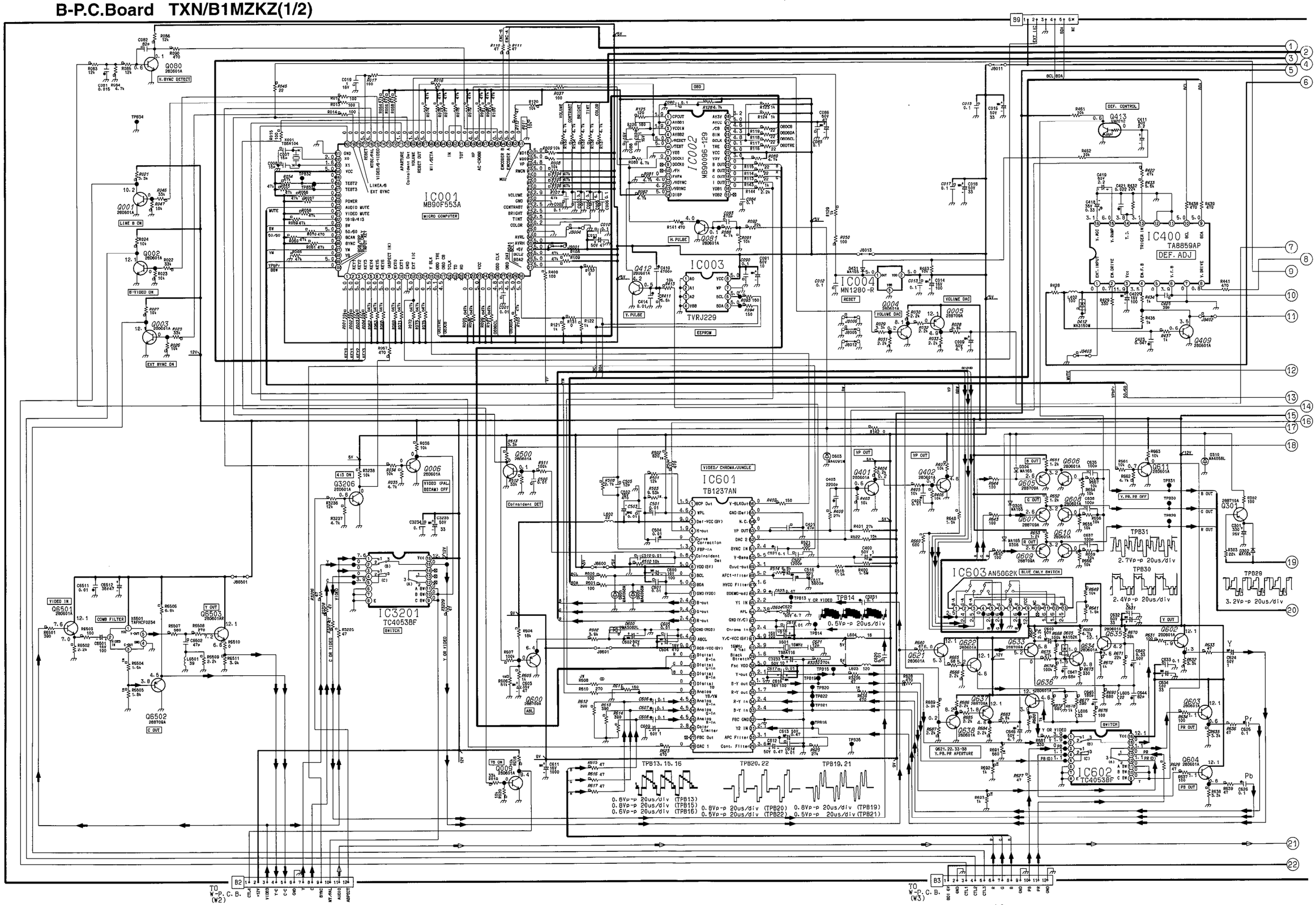
A-P.C.Board TNPH0281(2/2)



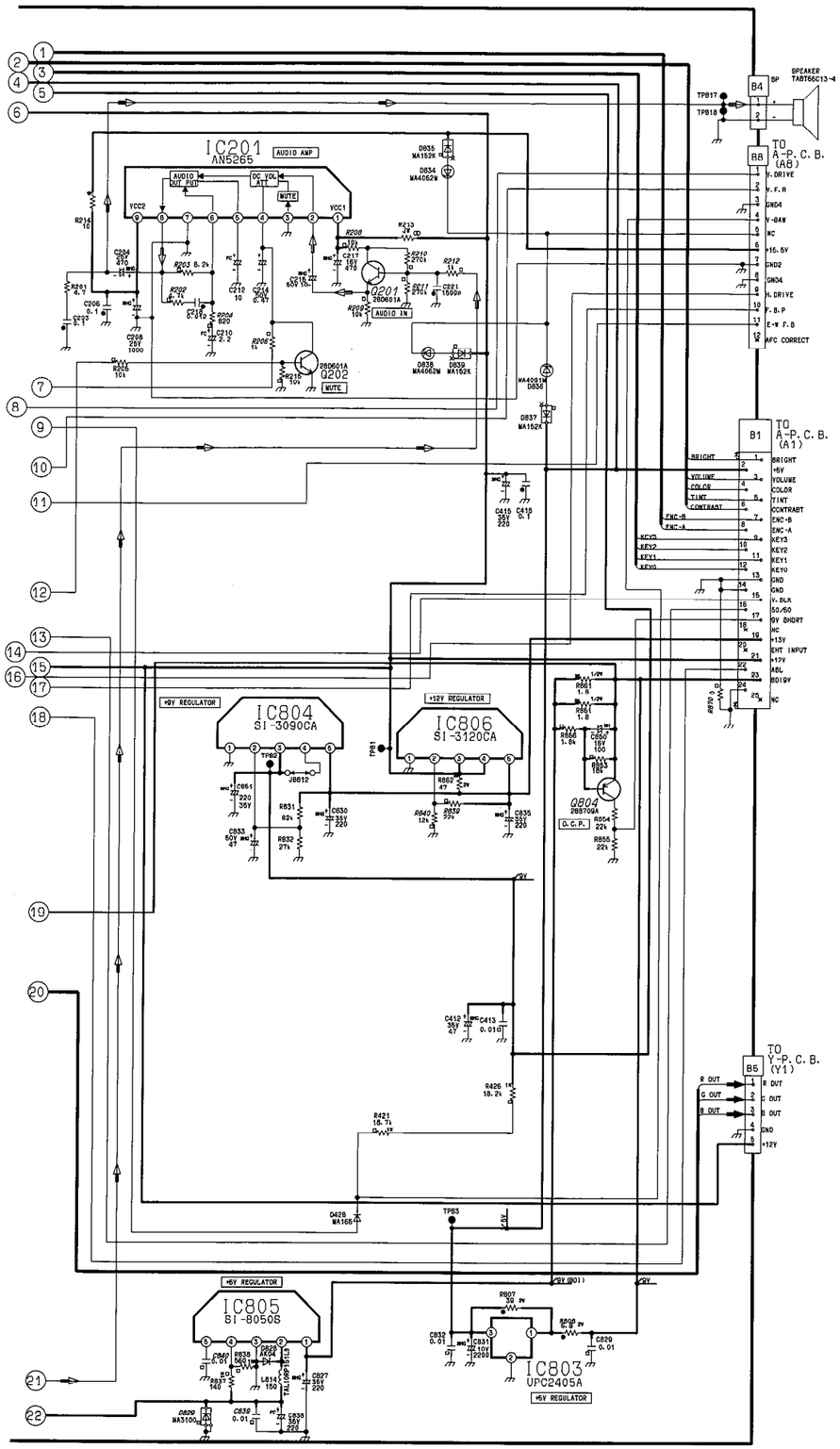
Y-P.C.Board TNPA1427



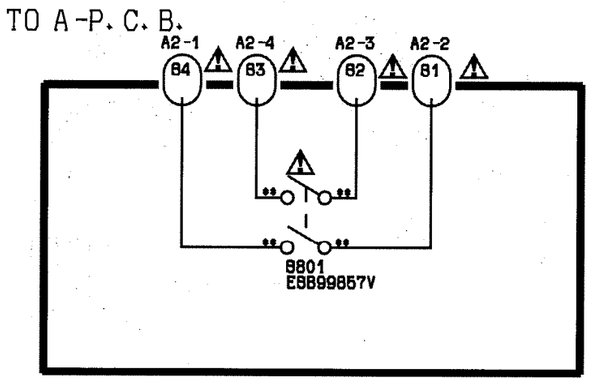
B-P.C.Board TXN/B1MZKZ(1/2)



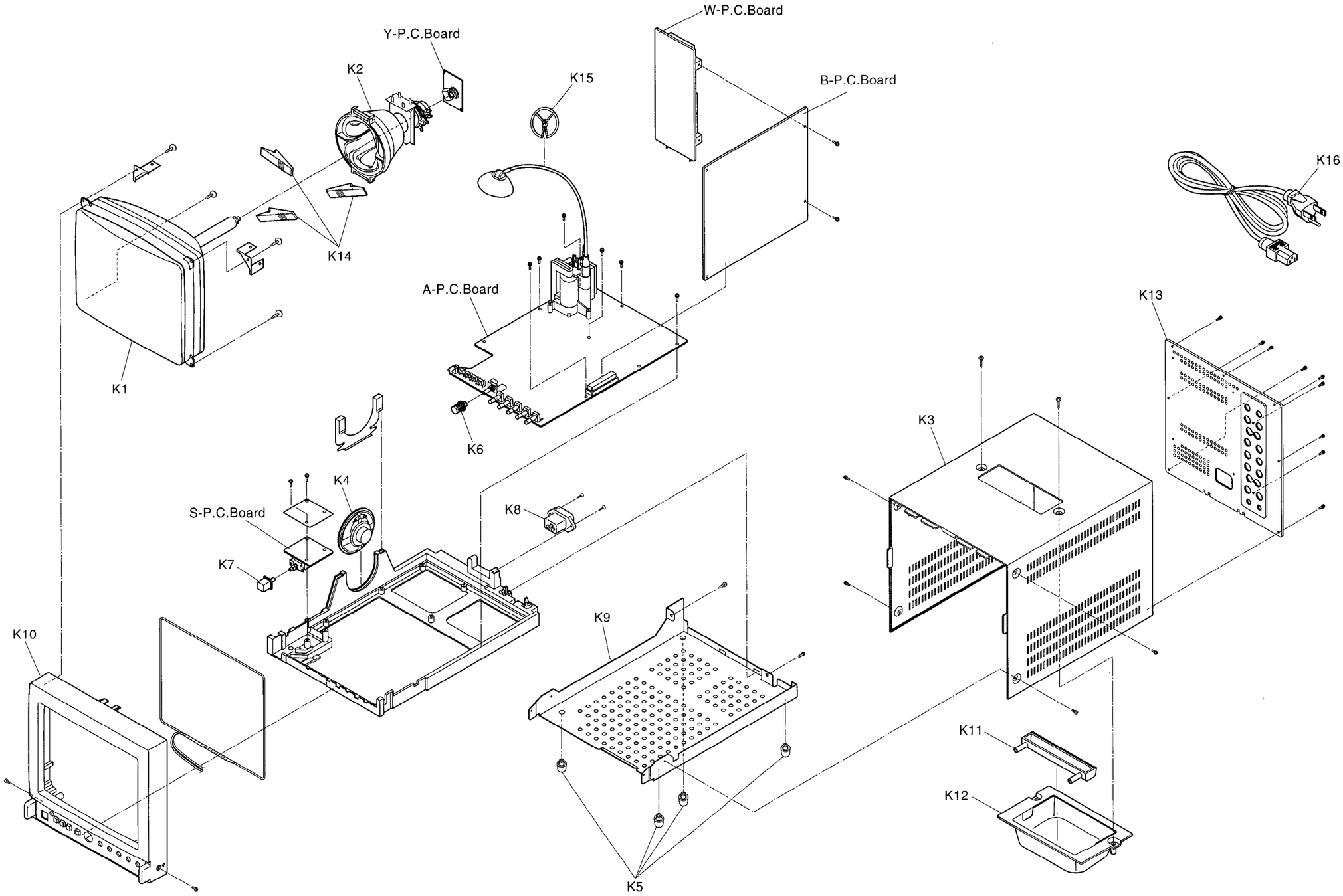
B-P.C.Board TXN/B1MZKZ(2/2)



S-P.C.Board TNPA1426



Exploded Views



Replacement Parts List

IMPORTANT SAFETY NOTICE

Components identified by the International symbol ⚠ have special characteristics important for safety.
When replacing any of these components, use only the manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W

TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Carbon	F : ± 1 %
F : Fuse	G : ± 2 %
M : Metal Oxide	J : ± 5 %
Metal Film	K : ±10%
S : Solid	M : ±20%
W : Wire Wound	

2. Capacitor

Example:

ECKF1H103ZF C 0.01PF, Z, 50V

TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Ceramic	C : ±0.25 pF
E : Electrolytic	D : ±0.5 pF
P : Polyester	F : ± 1 pF
PP: Polypropylene	J : ± 5 %
S : Polystyrol	K : ±10 %
T : Tantalum	L : ±15 %
	M : ±20 %
	P : +100 %, -0 %
	Z : +80 %, -20 %

Note: For G○○ of Ref. No., not indicate illustration of it part on "Exploded Views".
Printed circuit board assembly with mark (RTL) is no longer available after production discontinuation of the complete set.

	Ref.No	Part No	Description
		MECHANICAL PARTS	
⚠	K1	A22JWG098X	COLOR PICTURE TUBE
⚠	K2	KDY3CF989F	DEFLECTION YOKE
	K3	PAKA3504	TOP CABINET
	G1	PAPD351009-1	CUSHION
	G2	PAPD351010-1	CUSHION
	G3	PAPD352009-1	CUSHION
	G4	PAPD352010-1	CUSHION
	G5	PAQF37212	CAUTION LABEL
	K4	TAST66C13-4	SPEAKER
	K5	TBL173302	FOOT
	G6	TBMD601	MODEL PLATE
	G7	TBMU040	REAR TERMINAL PLATE
	K6	TBXA22501	CONTROL KNOB
	K7	TBX8780500	POWER KNOB
	G8	TES202-1	SPRING
	G9	THE415-2	SCREW
	G10	TJS1A2240	IC SOCKET
⚠	K8	TJS118070	AC SOCKET
	K9	TKCC008	BOTTOM PLATE
	K10	TXFEA99MZKZ	ESCUTCHEON
	K11	TKK139208-2	HANDLE
	K12	TKRA17601	HANDLE COVER
	K13	TKUX03901	REAR COVER
	K14	TMMJ043	DY WEDGE
	K15	TMM15404-1	SPACER RING
	G11	TMM16497-1	CLAMPER
	G12	TMM6428-1	CLAMPER
	G13	TMM7464-2	CLAMPER
	G14	TMM81416	CORD BAND (SMALL)
	G15	TPCA78301	CARTON
	G16	TPE114115-1	SET COVER
	G17	TQFA948	CAUTION LABEL
	G18	TQF81735	LABEL
	G19	TQF85762	FUSE LABEL
	G20	TQZB813	INSTRUCTION BOOK
⚠	K16	TSXA133	POWER CORD
	G21	XTB4+12J	SCREW
	G22	XTB4+15AFZ	SCREW
	G23	XTS3+10A	SCREW
	G24	XTV3+6JFZ	SCREW
	G25	XTW3+8T	TAPPING SCREW
	G26	XYA4+EF8	SCREW
	G27	XYE3+EF6FZ	SCREW
		INTEGRATED CIRCUITS	
	IC001	MB90F553A	IC
	IC002	MB90096-129	MOS IC (MICOM LSI)
	IC003	TVRJ299	IC
	IC004	MN1280R	MOS IC (MICON LSI)
	IC201	AN5265	LINEAR IC
	IC400	TA8859AP	LINEAR IC
	IC401	LA7832	IC
	IC601	TB1237AN	LINEAR IC
	IC602	TC4053BF	MOS IC (CMOS S/LOGIC)
	IC603	AN5862K	LINEAR IC
⚠	IC801	STRF6653LF53	LINEAR IC
⚠	IC802	SE115N	IC
	IC803	UPC2405AHF	LINEAR IC
	IC804	SI-3090CA	HYBRID IC
	IC805	SI-8050S	HYBRID IC
	IC806	SI-3120CA	HYBRID IC
	IC3001	TC4053BF	MOS IC (CMOS S/LOGIC)
	IC3002	TC4053BF	MOS IC (CMOS S/LOGIC)
	IC3003	MC14066BF	MOS IC (CMOS S/LOGIC)
	IC3201	TC4053BF	MOS IC (CMOS S/LOGIC)

TRANSISTORS

	Ref.No	Part No	Description
	Q001	2SD601AR	TRANSISTOR
	Q002	2SD601AR	TRANSISTOR
	Q003	2SD601AR	TRANSISTOR
	Q004	2SD601AR	TRANSISTOR
	Q005	2SB709A	TRANSISTOR
	Q006	2SD601AR	TRANSISTOR
	Q009	2SD601AR	TRANSISTOR
	Q080	2SD601AR	TRANSISTOR
	Q081	2SD601AR	TRANSISTOR
	Q201	2SD601AR	TRANSISTOR
	Q202	2SD601AR	TRANSISTOR
	Q301	2SB710A	TRANSISTOR
	Q351	2SC3063	TRANSISTOR
	Q352	2SC3063	TRANSISTOR
	Q353	2SC3063	TRANSISTOR
	Q401	2SD601AR	TRANSISTOR
	Q402	2SD601AR	TRANSISTOR
	Q409	2SD601AR	TRANSISTOR
	Q412	2SD601AR	TRANSISTOR
	Q413	2SD601AR	TRANSISTOR
	Q500	2SD601AR	TRANSISTOR
	Q512	2SD1266A	TRANSISTOR
	Q513	2SA1309A	TRANSISTOR
⚠	Q514	2SD601AR	TRANSISTOR
⚠	Q515	2SB709A	TRANSISTOR
⚠	Q517	2SD601AR	TRANSISTOR
⚠	Q518	2SB709A	TRANSISTOR
	Q551	2SC3940A	TRANSISTOR
⚠	Q552	2SD2499	TRANSISTOR
	Q600	2SB709A	TRANSISTOR
	Q602	2SD601AR	TRANSISTOR
	Q603	2SD601AR	TRANSISTOR
	Q604	2SD601AR	TRANSISTOR
	Q605	2SB709A	TRANSISTOR
	Q606	2SD601AR	TRANSISTOR
	Q607	2SB709A	TRANSISTOR
	Q608	2SD601AR	TRANSISTOR
	Q609	2SB709A	TRANSISTOR
	Q610	2SD601AR	TRANSISTOR
	Q611	2SD601AR	TRANSISTOR
	Q621	2SD601AR	TRANSISTOR
	Q622	2SD601AR	TRANSISTOR
	Q633	2SB709A	TRANSISTOR
	Q634	2SD601AR	TRANSISTOR
	Q635	2SD601AR	TRANSISTOR
	Q636	2SD601AR	TRANSISTOR
	Q637	2SB709A	TRANSISTOR
	Q638	2SD601AR	TRANSISTOR
	Q801	2SA1309A	TRANSISTOR
	Q802	2SA19610Q0HW	TRANSISTOR
	Q803	2SC3311A	TRANSISTOR
	Q804	2SB709A	TRANSISTOR
	Q3001	2SD601AR	TRANSISTOR
	Q3002	2SD601AR	TRANSISTOR
	Q3003	2SD601AR	TRANSISTOR
	Q3004	2SD601AR	TRANSISTOR
	Q3005	2SD601AR	TRANSISTOR
	Q3006	2SD601AR	TRANSISTOR
	Q3007	2SD601AR	TRANSISTOR
	Q3009	2SD601AR	TRANSISTOR
	Q3010	2SD601AR	TRANSISTOR
	Q3011	2SD601AR	TRANSISTOR
	Q3012	2SD601AR	TRANSISTOR
	Q3013	2SD601AR	TRANSISTOR
	Q3014	2SB710A	TRANSISTOR
	Q3015	2SD601AR	TRANSISTOR
	Q3016	2SB710A	TRANSISTOR
	Q3017	2SD601AR	TRANSISTOR
	Q3018	2SD601AR	TRANSISTOR
	Q3019	2SD601AR	TRANSISTOR
	Q3020	2SD601AR	TRANSISTOR
	Q3021	2SD601AR	TRANSISTOR
	Q3022	2SD601AR	TRANSISTOR
	Q3023	2SD601AR	TRANSISTOR
	Q3206	2SD601AR	TRANSISTOR
	Q6501	2SD601AR	TRANSISTOR
	Q6502	2SB709A	TRANSISTOR
	Q6503	2SD601AR	TRANSISTOR

DIODES

	Ref.No	Part No	Description
	D001	LN31GPH	LED (GREEN)
	D301	MA165	DIODE
	D302	MA165	DIODE
	D304	MA165	DIODE
	D305	MA165	DIODE
	D306	MA165	DIODE
	D406	MA152K	DIODE
	D412	MA3150M	DIODE
	D415	MA29WB	DIODE
	D417	MA29WB	DIODE
	D419	TVSEM1Z	DIODE
	D420	MA4390	ZENER DIODE
	D421	MA4390	ZENER DIODE
	D422	MA4390	ZENER DIODE
	D428	MA165	DIODE
	D430	MA165	DIODE
	D506	MA165	DIODE
	D508	MA171	DIODE
	D509	MA165	DIODE
⚠	D513	RH3F	DIODE
⚠	D514	EU02A	DIODE
	D517	MA29W-A	DIODE
	D518	MA165	DIODE
	D519	MA4150M	ZENER DIODE
⚠	D520	AS01A	DIODE
⚠	D521	MA4062L	ZENER DIODE
	D523	EU02A	DIODE
⚠	D524	MA152K	DIODE
⚠	D526	MA152K	DIODE
	D527	AS01A	DIODE
	D541	MA4270H	ZENER DIODE
	D556	MA182	DIODE
	D557	MA4300M	ZENER DIODE
	D600	MA3082L	ZENER DIODE
	D601	MA4068M	ZENER DIODE
	D602	MA4068M	ZENER DIODE
	D603	MA4091M	ZENER DIODE
	D605	MA152K	DIODE
⚠	D802	D4SB80Z	DIODE
	D807	ERA15-04	DIODE
	D811	TMPG10G3	DIODE
	D812	AG01	DIODE
	D813	AG01	DIODE
	D814	AG01	DIODE
	D815	MA1068M	ZENER DIODE
	D816	MA1082M	ZENER DIODE
⚠	D817	TLP721FD4GR	PHOTO COUPLER
⚠	D818	TLP721FD4GR	PHOTO COUPLER
	D819	RU30A	DIODE
	D820	TVSRU3N	DIODE
	D821	RL4Z	DIODE
	D822	TVSRU3N	DIODE
	D823	MA165	DIODE
	D824	MA165	DIODE
	D826	MA165	DIODE
⚠	D827	TAP111M003	THERMISTOR
	D828	AK04	DIODE
	D829	MA3100	ZENER DIODE
	D830	MA165	DIODE
	D831	MA4062M	DIODE

	Ref.No	Part No	Description
	D832	AG01	DIODE
	D833	AG01	DIODE
	D834	MA4062M	DIODE
	D835	MA152K	DIODE
	D836	MA4091M	DIODE
	D837	MA152K	DIODE
	D838	MA4062M	DIODE
	D839	MA152K	DIODE
	D850	TVSRU3N	DIODE
	D3001	MA152K	DIODE
	D3002	MA152K	DIODE
	D3003	MA152K	DIODE
	D3004	MA152K	DIODE
	D3005	MA152K	DIODE
	D3006	MA152K	DIODE
	D3007	MA152K	DIODE
		COILS	
	L201	ELEIE470KA	PEAKING COIL
	L351	TLUABTA680K	PEAKING COIL
	L402	TLT101J991K	PEAKING COIL 10U
⚠	L501	ELH5L4118	LINEARITY COIL
	L503	ELC16B102	CHOKE COIL
⚠	L552	ELEIE682KA	CHOKE COIL
	L602	TLT220J991K	PEAKING COIL 22U
	L603	TLT121K991K	PEAKING COIL 120U
	L604	TLT180J991K	PEAKING COIL 18U
	L605	TLT220J991K	PEAKING COIL 22U
	L606	TLT330J991K	PEAKING COIL 33U
⚠	L801	TSPA102	DEGAUSSING COIL
⚠	L802	ELF18D656K	LINE FILTER
	L804	EXCELSA35	BEAD CHOKE
	L805	EXCELDR35C	CORE
	L806	EXCELSA39	BEAD CHOKE
	L807	EXCELSA35	BEAD CHOKE
	L808	EXCELSA35	BEAD CHOKE
	L809	EXCELSA35	BEAD CHOKE
	L812	ELEIE101KA	PEAKING COIL
	L814	TAL10RP151LB	CHOKE COIL
	L6501	TLT390J991K	PEAKING COIL 39U
		TRANSFORMERS	
	T551	ETH09K7AZ	H DRIVE TRANS
⚠	T552	KFT2AA225F	FLYBACK TRANS
⚠	T802	ETS29AK3Y6ND	SWITCHING TRANS
		RESISTORS	
	R001	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R002	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R003	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R004	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R008	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R009	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R011	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R012	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R013	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R014	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R015	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R016	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R017	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R018	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R019	ERJ6GEYJ333	M 33KOHM, J, 1/10W
	R020	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R021	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R022	ERJ6GEYJ333	M 33KOHM, J, 1/10W
	R023	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R024	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R025	ERJ6GEYJ333	M 33KOHM, J, 1/10W
	R026	ERJ6GEYJ103	M 10KOHM, J, 1/10W

Ref.No	Part No	Description
R027	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R028	ERJ6GEYJ682	M 6.8KOHM, J, 1/10W
R029	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
R030	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R031	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R032	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R033	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R034	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R035	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R036	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R037	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R045	ERJ6GEYJ220	M 22 OHM, J, 1/10W
R046	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R047	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R048	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R050	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R054	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R055	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R056	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R057	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R058	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R059	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R060	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R061	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R062	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R063	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R064	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R065	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R066	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R067	ERJ6GEYJ471	M 470 OHM, J, 1/10W
R068	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R069	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R070	ERJ6GEYJ471	M 470 OHM, J, 1/10W
R071	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R072	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R073	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R074	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R075	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R076	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R077	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R078	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R079	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R080	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R081	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R082	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R083	ERJ6GEYJ123	M 12KOHM, J, 1/10W
R084	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R085	ERJ6GEYJ123	M 12KOHM, J, 1/10W
R086	ERJ6GEYJ123	M 12KOHM, J, 1/10W
R088	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R089	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R090	ERJ6GEYJ471	M 470 OHM, J, 1/10W
R091	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R092	ERJ6GEYJ223	M 22KOHM, J, 1/10W
R093	ERJ6GEYJ151	M 150 OHM, J, 1/10W
R094	ERJ6GEYJ151	M 150 OHM, J, 1/10W
R095	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R096	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R097	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R098	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R099	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R100	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R101	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R103	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R104	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R105	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R106	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R107	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R108	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R109	ERJ6GEYJ473	M 47KOHM, J, 1/10W
R110	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R111	ERJ6GEYJ470	M 47 OHM, J, 1/10W

	Ref.No	Part No	Description
	R112	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R113	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R114	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R115	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R116	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R117	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R118	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R119	ERJ6GEYJ220	M 22 OHM, J, 1/10W
	R120	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R121	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R122	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R123	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R124	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R125	ERJ6GEYJ121	M 120 OHM, J ,1/10W
	R126	ERJ6GEYJ181	M 180 OHM, J, 1/10W
	R128	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R129	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R131	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	R132	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	R133	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R134	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R135	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R136	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R137	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R141	ERJ6GEYJ471	M 470 OHM, J, 1/10W
	R142	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	R143	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R144	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R201	ERDS2TJ4R7	C 4.7 OHM, J, 1/4W
	R202	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R203	ERJ6GEYJ822	M 8.2KOHM, J, 1/10W
	R204	ERJ6GEYJ821	M 820 OHM, J, 1/10W
	R205	ERJ6GEYJ103	M 10K OHM, J, 1/10W
	R206	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R208	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R209	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R210	ERJ6GEYJ274	M 270KOHM, J, 1/10W
	R211	ERJ6GEYJ274	M 270KOHM, J, 1/10W
	R212	ERJ6GEYJ102	M 1KOHM, J, 1/10W
⚠	R214	ERQ1CJP100S	F 10 OHM, J, 1W
	R215	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R303	ERJ6GEYJ223	M 22KOHM, J, 1/4W
	R347	ERDS2TJ272	C 2.7KOHM, J, 1/4W
	R348	ERDS2TJ272	C 2.7KOHM, J, 1/4W
	R349	ERDS2TJ272	C 2.7KOHM, J, 1/4W
	R351	ERG2FJ822H	M 8.2KOHM, J, 2W
	R352	ERG2FJ822H	M 8.2KOHM, J, 2W
	R353	ERG2FJ822H	M 8.2KOHM, J, 2W
	R354	ERC12GK332	S 3.3KOHM, K, 1/2W
	R355	ERC12GK332	S 3.3KOHM, K, 1/2W
	R356	ERC12GK332	S 3.3KOHM, K, 1/2W
	R357	ERDS2TJ511	C 510 OHM, J, 1/4W
	R358	ERDS2TJ511	C 510 OHM, J, 1/4W
	R359	ERDS2TJ511	C 510 OHM, J, 1/4W
	R364	ERDS2TJ151	C 150 OHM, J, 1/4W
	R365	ERDS2TJ151	C 150 OHM, J, 1/4W
	R366	ERDS2TJ151	C 150 OHM, J, 1/4W
	R370	ERG1SJ683P	M 68KOHM, J, 1W
	R400	ERDS2TJ155	C 1.5MOHM, J, 1/4W
	R401	ERDS2TJ273	C 27KOHM, J, 1/4W
	R402	ERJ6GEYJ151	M 150 OHM, J, 1/10W
	R403	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R404	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R405	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R406	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R407	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R408	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R409	ERJ6GEYJ273	M 27KOHM, J, 1/10W
	R411	ERJ6GEYJ562	M 5.6KOHM, J, 1/10W
	R413	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R415	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R418	ERJ6GEYJ473	M 47KOHM, J, 1/10W

	Ref.No	Part No	Description
	R421	ERJ6ENF1872	M 18.7KOHM, 1/10W
	R422	ERJ6GEYJ473	M 47KOHM, J, 1/10W
	R426	ERJ6ENF1822	M 18.2KOHM, 1/10W
	R428	ERDS2TJ1R0	C 1 OHM, J, 1/4W
	R429	ERDS2TJ331	C 330 OHM, J, 1/4W
	R432	ERDS2TJ223	C 22KOHM, J, 1/4W
	R433	ERJ6GEYJ562	M 5.6KOHM, J, 1/10W
	R434	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R435	ERDS2TJ102	C 1KOHM, J, 1/4W
	R437	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R438	ERDS2TJ471	C 470 OHM, J, 1/4W
	R439	ERDS2TJ471	C 470 OHM, J, 1/4W
	R441	ERDS2TJ471	C 470 OHM, J, 1/4W
	R443	ERDS2TJ102	C 1KOHM, J, 1/4W
	R444	ERDS2TJ561	C 560 OHM, J, 1/4W
	R445	ERDS2TJ392	C 3.9KOHM, J, 1/4W
	R446	ERDS2TJ223	C 22KOHM, J, 1/4W
	R447	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R448	ERDS2TJ153	C 15KOHM, J, 1/4W
	R449	ERDS2TJ393	C 39KOHM, J, 1/4W
	R450	ERDS1FJ2R7	C 2.7 OHM, J, 1/2W
	R453	ERDS2TJ394	C 390KOHM, J, 1/4W
	R454	ERDS2TJ333	C 33KOHM, J, 1/4W
	R459	ERDS1FJ102	C 1KOHM, J, 1/2W
	R501	ERJ6GEYJ123	M 12KOHM, J, 1/10W
	R502	ERJ6ENF8200	M 820 OHM, 1/10W
	R503	ERJ6ENF9531	M 9.53KOHM, 1/10W
	R504	ERJ6GEYJ471	M 470 OHM, J, 1/10W
	R508	ERJ6GEYJ272	M 2.7KOHM, J, 1/10W
	R510	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R511	ERJ6GEYJ104	M 100KOHM, J, 1/10W
	R512	ERJ6GEYJ333	M 33KOHM, J, 1/10W
	R513	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R514	ERJ6GEYJ682	M 6.8KOHM, J, 1/10W
	R515	ERDS2TJ752	C 7.5KOHM, J, 1/4W
	R521	ERDS2TJ101	C 100 OHM, J, 1/4W
	R522	ERDS2TJ153	C 15KOHM, J, 1/4W
⚠	R535	ERDS1TJ301	C 300 OHM, J, 1/2W
	R539	ERDS2TJ101	C 100 OHM, J, 1/4W
	R542	ERDS2TJ221	C 220 OHM, J, 1/4W
	R543	ERG2FJS680D	M 68 OHM, J 2W
	R549	ERDS1TJ102	C 1KOHM, J, 1/2W
⚠	R552	ERQ12AJ271P	F 270 OHM, J, 1/2W
⚠	R558	ERQ2CJP102S	F 1KOHM, J, 2W
⚠	R560	ERQ1CJP100S	F 10 OHM, J, 1W
	R561	ERDS2TJ222	C 2.2KOHM, J, 1/4W
	R562	ERDS2TJ681	C 680 OHM, J, 1/4W
	R563	ERDS2TJ271	C 270 OHM, J, 1/4W
	R564	ERDS2TJ223	C 22KOHM, J, 1/4W
	R565	ERDS2TJ223	C 22KOHM, J, 1/4W
	R566	ERDS2TJ682	C 6.8KOHM, J, 1/4W
	R568	ERQ1CJP5R6S	F 5.6 OHM, J, 1W
⚠	R569	ERD25FJ470	C 47 OHM, J, 1/4W
⚠	R570	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
⚠	R571	ER0S2CKF2202	M 22KOHM, F, 1/4W
⚠	R572	EVMEGSA00B53	CONTROL 5K0HMB
⚠	R573	ER0S2CKF6801	M 6.8KOHM, F, 1/4W
⚠	R574	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
⚠	R575	ERJ6GEYJ103	M 10KOHM, J, 1/10W
⚠	R576	ERJ6GEYJ682	M 6.8KOHM, J, 1/10W
⚠	R577	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R578	ERD50FJ1R0	C 1 OHM, J, 1/2W
⚠	R579	ERJ6GEYJ103	M 10KOHM, J, 1/10W
⚠	R581	ERJ6GEYJ153	M 15KOHM, J, 1/10W
⚠	R582	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R588	ER025CKF1623	M 162KOHM, F, 1/4W
	R589	ER025CKF1623	M 162KOHM, F, 1/4W
⚠	R590	ERJ6GEYJ102	M 1KOHM, J, 1/10W
⚠	R591	ERJ6GEYJ104	M 100KOHM, J, 1/10W
	R592	ERDS2TJ103	C 10KOHM, J, 1/4W
	R594	ERDS2TJ333	C 33KOHM, J, 1/4W
	R600	ERJ6GEYJ101	M 100 OHM, J, 1/10W

	Ref.No	Part No	Description
	R601	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R602	ERJ6GEYJ392	M 3.9KOHM, J, 1/10W
	R604	ERJ6GEYJ183	M 18KOHM, J, 1/10W
	R605	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R606	ERJ6ENF5102	M 51KOHM, 1/10W
	R607	ERJ6GEYJ104	M 100KOHM, J, 1/10W
	R610	ERDS2TJ271	C 270 OHM, J, 1/4W
	R611	ERJ6GEYJ151	M 150 OHM, J, 1/10W
	R612	ERJ6GEYJ391	M 390 OHM, J, 1/10W
	R613	ERJ6GEYJ391	M 390 OHM, J, 1/10W
	R614	ERJ6GEYJ391	M 390 OHM, J, 1/10W
	R615	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R616	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R617	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R623	ERJ6GEYJ471	M 470 OHM, J, 1/10W
	R625	ERJ6GEYJ273	M 27KOHM, J, 1/10W
	R627	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R628	ERJ6ENF4700	M 470 OHM, J, 1/10W
	R629	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R630	ERJ6ENF4700	M 470 OHM, J, 1/10W
	R631	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R632	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R633	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R634	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R635	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R636	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R637	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R638	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R639	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R640	ERJ6GEYJ470	M 47 OHM, J, 1/10W
	R641	ERJ6GEYJ152	M 1.5KOHM, J, 1/10W
	R642	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R643	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R644	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R648	ERJ6GEYJ152	M 1.5KOHM, J, 1/10W
	R649	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R651	ERJ6GEYJ122	M 1.2KOHM, J, 1/10W
	R652	ERJ6GEYJ122	M 1.2KOHM, J, 1/10W
	R653	ERJ6GEYJ122	M 1.2KOHM, J, 1/10W
	R654	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R655	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R656	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R657	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R658	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R659	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R660	ERJ6GEYJ681	M 680 OHM, J, 1/10W
	R661	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R662	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R663	ERJ6GEYJ103	M 10KOHM, J, 1/10W
	R665	ERJ6GEYJ680	M 68 OHM, J, 1/10W
	R666	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R667	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R668	ERJ6GEYJ104	M 100KOHM, J, 1/10W
	R669	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
	R670	ERJ6GEYJ393	M 39KOHM, J, 1/10W
	R671	ERJ6GEYJ223	M 22KOHM, J, 1/10W
	R672	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R673	ERJ6GEYJ330	M 330 OHM, J, 1/10W
	R674	ERJ6GEYJ104	M 100KOHM, J, 1/10W
	R675	ERJ6GEYJ273	M 27KOHM, J, 1/10W
	R676	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R677	ERJ6GEYJ391	M 390 OHM, J, 1/10W
	R678	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R679	ERJ6GEYJ681	M 680 OHM, J, 1/10W
	R680	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R681	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R683	ERJ6GEYJ682	M 6.8KOHM, J, 1/10W
	R684	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R685	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R686	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R687	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
	R689	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
	R690	ERJ6GEYJ681	M 680 OHM, J, 1/10W
	R691	ERJ6ENF5600	M 560 OHM, 1/10W
	R692	ERJ6ENF1001	M 1KOHM, 1/10W
	R693	ERJ6ENF1001	M 1KOHM, 1/10W
	R802	ERG3FJ563H	M 56K OHM, J, 3W
⚠	R804	ERC12GK335	S 3.3MOHM, K, 1/2W
	R805	ERDS2TJ333	C 33KOHM, J, 1/4W
⚠	R806	ERQ2CJP6R8S	F 6.8 OHM, J, 2W
⚠	R807	ERQ2CJP390S	F 39 OHM, J, 2W
	R808	ERX12SJR68	M 0.68 OHM, J 1/2W
	R809	ERX12SJR68	M 0.68 OHM, J 1/2W
	R810	ERDS2TJ681	C 680 OHM, J, 1/4W
	R811	ERDS2TJ100	C 10 OHM, J, 1/4W
	R812	ERDS2TJ272	C 2.7KOHM, J, 1/4W
	R813	ERDS2TJ152	C 1.5KOHM, J, 1/4W
	R814	ERDS2TJ273	C 27KOHM, J, 1/4W
	R815	ERDS1TJ474	C 4.7KOHM, J, 1/2W
	R816	ERDS1TJ334	C 330KOHM, J, 1/2W
	R817	ERDS2TJ103	C 10KOHM, J, 1/4W
	R819	ERG1FJS820D	M 82 OHM, J, 1W
	R820	ERDS2TJ103	C 10KOHM, J, 1/4W
	R821	ERDS2TJ332	C 3.3KOHM, J, 1/4W
	R824	ERDS2TJ102	C 1KOHM, J, 1/4W
	R826	ERDS2TJ102	C 1KOHM, J, 1/4W
	R828	ERDS1FJ272	C 2.7KOHM, J, 1/2W
	R829	ERDS1FJ3R3	C 3.3 OHM, J, 1/2W
	R830	ERDS1FJ3R9	C 3.9 OHM, J, 1/2W
	R831	ERDS2TJ823	C 82KOHM, J, 1/4W
	R832	ERDS2TJ273	C 27KOHM, J, 1/4W
⚠	R833	ERC12GK825	S 8.2MOHM, K, 1/2W
	R834	ERDS2TJ102	C 1K OHM, J, 1/2W
	R835	ERDS2TJ223	C 22KOHM, J, 1/4W
	R836	ERDS2TJ223	C 22KOHM, J, 1/4W
	R837	ERJ6ENF1400	M 140 OHM, 1/10W
	R838	ERJ6ENF5600	M 560 OHM, 1/10W
	R839	ERJ6GEYJ223	M 22KOHM, J, 1/10W
	R840	ERJ6GEYJ123	M 12KOHM, J, 1/10W
	R841	ERDS2TJ101	C 100 OHM, J, 1/10W
	R842	ERDS2TJ102	C 1KOHM, J, 1/4W
	R851	ERX12SJ1R8	M 1.8 OHM, J, 1/2W
⚠	R852	ERF3AK1R0	W 1 OHM, K, 3W
	R853	ERJ6ENF1802	M 18KOHM, J, 1/10W
	R854	ERDS2TJ332	C 3.3KOHM, J, 1/4W
	R855	ERDS2TJ182	C 1.8KOHM, J, 1/4W
	R856	ERJ6ENF1801	M 1.8KOHM, J, 1/10W
⚠	R860	ERQ14AJ101P	F 100 OHM, J, 1/4W
	R861	ERX12SJ1R8	M 1.8 OHM, J, 1/2W
	R862	ERG2SJ470H	M 47 OHM, J, 2W
	R870	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	R1000	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1001	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1002	EVUE20E25B14	CONTROL 10 OHMB
	R1003	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R1004	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1005	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1006	EVUE30E25B14	CONTROL 10KOHMB
	R1007	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R1008	EVUE30E25B14	CONTROL 10KOHMB
	R1009	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1010	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R1011	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1012	EVUE30E25B14	CONTROL 10KOHMB
	R1013	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1014	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1015	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R1016	EVUE30E25B14	CONTROL 10KOHMB
	R1017	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1018	ERJ6GEYJ102	M 1KOHM, J, 1/10W
	R1019	ERJ6GEYJ331	M 330 OHM, J, 1/10W
	R1020	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R1021	ERJ6GEYJ101	M 100 OHM, J, 1/10W
	R1022	ERJ6GEYJ103	M 10KOHM, J, 1/10W

Ref.No	Part No	Description
R1023	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R1024	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R1025	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R1026	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R1027	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R1028	ERJ6GEYJ102	M 1KOHM, J, 1/10W
R3001	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3002	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3003	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3004	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3005	ERJ6ENF1000	M 100 OHM, 1/10W
R3006	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3007	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3008	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3009	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3010	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3011	ERJ8ENF75R0	M 75 OHM, F, 1/8W
R3013	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3014	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3015	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3016	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3017	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3018	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3019	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3020	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3021	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3022	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3023	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3025	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3026	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3027	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3028	ERJ6GEYJ183	M 18KOHM, J, 1/10W
R3029	ERJ6GEYJ273	M 27KOHM, J, 1/10W
R3030	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R3031	ERJ6ENF1201	M 1.2KOHM, 1/10W
R3032	ERJ6ENF3601	M 3.6KOHM, 1/10W
R3033	ERJ6ENF1201	M 1.2KOHM, 1/10W
R3034	ERJ6ENF3601	M 3.6KOHM, 1/10W
R3035	ERJ6GEY0R00	M 0 OHM, J, 1/10W
R3036	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R3037	ERJ6GEY0R00	M 0 OHM, J, 1/10W
R3038	ERJ6GEY0R00	M 0 OHM, J, 1/10W
R3039	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3040	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3041	ERJ6GEYJ182	M 1.8KOHM, J, 1/10W
R3043	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3044	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3045	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R3046	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3047	ERJ6GEYJ153	M 15KOHM, J, 1/10W
R3048	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3049	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R3050	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R3051	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3052	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3053	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3054	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3055	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3056	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
R3057	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3058	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
R3059	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3060	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3061	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3062	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3063	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3064	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3065	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3066	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3067	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3068	ERJ6GEYJ272	M 2.7KOHM, J, 1/10W
R3069	ERJ6GEYJ272	M 2.7KOHM, J, 1/10W
R3070	ERJ6GEYJ272	M 2.7KOHM, J, 1/10W
R3071	ERJ6GEYJ272	M 2.7KOHM, J, 1/10W
R3072	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3073	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3074	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3075	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3076	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3077	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3078	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3079	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3080	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3081	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R3082	ERJ6ENF1800	M 180 OHM, 1/10W
R3083	ERJ6ENF2201	M 2.2KOHM, 1/10W
R3084	ERJ6ENF8200	M 820 OHM, 1/10W
R3085	ERJ6ENF2201	M 2.2KOHM, 1/10W
R3086	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3087	ERJ6GEYJ333	M 33KOHM, J, 1/10W
R3088	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
R3089	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3090	ERJ6ENF8200	M 820 OHM, 1/10W
R3091	ERJ6GEYJ102	M 1KOHM, J, 1/10W
R3092	ERJ6GEYJ332	M 3.3KOHM, J, 1/10W
R3093	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3094	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R3095	ERJ6GEYJ183	M 18KOHM, J, 1/10W
R3096	ERJ6GEYJ273	M 27KOHM, J, 1/10W
R3097	ERJ6GEYJ182	M 1.8KOHM, J, 1/10W
R3225	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3226	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3227	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3228	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3229	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3230	ERJ6GEYJ274	M 270KOHM, J, 1/10W
R3235	ERJ6GEYJ470	M 47 OHM, J, 1/10W
R3236	ERJ6GEYJ123	M 12KOHM, J, 1/10W
R3237	ERJ6GEYJ472	M 4.7KOHM, J, 1/10W
R3238	ERJ6GEYJ103	M 10KOHM, J, 1/10W
R6501	ERJ6GEYJ391	M 390 OHM, J, 1/10W
R6502	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R6503	ERJ6GEYJ101	M 100 OHM, J, 1/10W
R6504	ERJ6ENF1501	M 1.5KOHM, J, 1/10W
R6505	ERJ6ENF1801	M 1.8KOHM, J, 1/10W
R6506	ERJ6GEYJ682	M 6.8KOHM, J, 1/10W
R6507	ERJ6GEYJ561	M 560 OHM, J, 1/10W
R6508	ERJ6GEYJ271	M 270 OHM, J, 1/10W
R6509	ERJ6GEYJ222	M 2.2KOHM, J, 1/10W
R6510	ERJ6GEY0R00	M 0 OHM, J, 1/10W
R6511	ERJ6GEYJ392	M 3.9KOHM, J, 1/10W

CAPACITORS

C001	ECJ2XF1H103Z	C 0.01UF, Z, 50V
C002	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C003	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C004	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C005	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C006	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C007	ECUX1H150JCX	C 15PF, J, 50V
C008	ECUX1H150JCX	C 15PF, J, 50V
C009	ECA1HMH4R7	E 4.7UF, 50V
C010	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C011	ECA1HMH470	E 47UF, 50V
C012	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C013	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C014	ECA1CMH101	E 100UF, 16V
C015	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C016	ECA1HMH330	E 33UF, 50V
C017	ECJ2XF1H104Z	C 0.1UF, Z, 50V
C018	ECA1HMH330	E 33UF, 50V
C019	ECJ2XF1C105Z	C 1UF, Z, 16V
C024	ECJ2XF1C105Z	C 1UF, Z, 16V

	Ref.No	Part No	Description
	C080	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C081	ECQB1H153JF	P 0.015UF, J, 50V
	C082	ECUX1H820JCX	C 82PF, J, 50V
	C083	ECUX1H471JCX	C 470PF, J, 50V
	C084	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C085	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C086	ECA1HMH470	E 47UF, 50V
	C088	ECJ2XF1C105Z	C 1UF, Z, 16V
	C090	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C091	ECA1HMH100	E 10UF, 50V
	C203	ECQB1H104KF	P 0.1UF, K, 50V
	C204	ECA1EHG471	E 470UF, 25V
	C206	ECQV1H104JM	P 0.1UF, J, 50V
	C208	ECA1EHG102	E 1000UF, 25V
	C210	EEUFC1H2R2	E 2.2UF, 50V
	C212	EEUFC1H100	E 10 UF, 50V
	C214	ECA1HGNR47G	E 0.47UF, 50V
	C215	ECA1HHG100	E 10UF, 50V
	C217	ECA1CHG471	E 470UF, 16V
	C218	ECQB1H123KF	P 0.012UF, K, 50V
	C221	ECQB1H152KF	P 1500PF, K, 50V
	C301	ECA1CMH101	E 100UF, 16V
	C302	ECQB1H103JF	P 0.01UF, 50V
	C351	ECCF1H181JC	C 180PF, J, 50V
	C352	ECCF1H181JC	C 180PF, J, 50V
	C353	ECCF1H181JC	C 180PF, J, 50V
	C355	ECKD3D332KBN	C 3300PF, K, 2KV
	C400	ECA1HMH010	E 1UF, 50V
	C401	ECUX1H470JCX	C 47PF, J, 50V
	C402	ECQB1H103JF	P 0.01UF, J, 50V
	C403	ECQB1H222JF	P 2200PF, J, 50V
	C410	ECQB1H472JF	P 4700PF, J, 50V
	C411	ECQB1H222JF	P 2200PF, J, 50V
	C412	ECA1VHG470	E 47UF, 35V
	C413	ECUX1H103ZFX	C 0.01UF, Z, 50V
	C414	ECQB1H103JF	P 0.01UF, J, 50V
	C415	ECA1VHG221	E 220UF, 35V
	C416	ECQB1H104KF	P 0.1UF, K, 50V
	C418	ECSF1VE334V	T 0.33UF, 35V
	C419	ECA1HHG2R2	E 2,2UF, 50V
	C421	ECQB1H223JF	P 0.022UF, J, 50V
	C422	ECA1CMH102	E 1000UF, 16V
	C423	ECQB1H473JF	P 0.047UF, J, 50V
	C425	ECUX1H390JCX	C 39PF, J, 50V
	C428	ECA1HMH3R3	E 3.3UF, 50V
	C429	ECA1EM102	E 1000UF, 25V
	C430	ECQV1H154JM	P 0.15UF, J, 50V
	C432	ECQB1223KF	P 0.022UF, K, 100V
	C435	ECA1VMH101	E 100UF, 35V
	C436	ECA1VMH102	E 1000UF, 35V
	C501	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C502	ECA1CHG471	E 470UF, 16V
	C503	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C504	ECQB1H103JF	P 0.01UF, J, 50V
	C505	ECUX1H120JCX	C 12PF, J, 50V
	C506	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C510	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C516	ECA1HMH2R2	E 2.2UF, 50V
	C517	ECQB1H562JF	P 5600PF, J, 50V
	C521	ECQB1H104JF	P 0.1UF, J, 50V
	C522	ECUX1H122JCX	C 1200PF, J, 50V
	C531	ECUX1H272KBX	C 2700PF, K, 50V
⚠	C532	ECKD3D391JBN	C 390PF, J, 2KV
⚠	C533	ECQM4822JZ	P 8200PF, J, 400V
	C534	ECQB1H822JF	P 8200PF, J, 50V
	C535	ECQB1H153JF	P 0.015UF, J, 50V
⚠	C537	ECWH20152JV	P 1500PF, 2KV
⚠	C538	ECWH20122JV	P 1200PF, J, 2KV
⚠	C539	ECKD3D821JBP	C 820PF, J, 2KV
⚠	C542	ECKD3D681JBP	P 680PF, J, 2KV
⚠	C543	ECQB1H273JF	P 0.027UF, J, 50V
⚠	C544	ECWF2224JBB	P 0.22UF, J, 250V

	Ref.No	Part No	Description
	C546	ECQE1335KF	P 3.3UF, K, 100V
	C548	ECKF1H101KB	C 100PF, K, 50V
⚠	C550	ECA1HMH470	E 47UF, 50V
⚠	C551	ECA1HMH220	E 22UF, 50V
⚠	C552	ECQE2474KZ	P 0.47UF, K, 250V
	C553	ECA1CMH101	E 100UF, 16V
⚠	C554	ECUX1H103JBX	C 0.01UF, J, 50V
⚠	C555	ECA1VMH470	E 47UF, 35V
	C556	ECA1VHG101	E 100UF, 35V
⚠	C558	ECQB1H104KF	P 0.1UF, K, 50V
	C559	ECKD3A561KBP	C 560PF, K, 1KV
⚠	C562	ECA1HMH4R7	E 4.7UF, 50V
	C563	ECA2CM100	E 10UF, 160V
⚠	C564	ECA1HMH4R7	E 4.7UF, 50V
	C565	ECKD2H561KB2	C 560PF, K, 500V
	C567	ECEA160V33U	E 33UF, 160V
⚠	C568	ECA1EGN100G	E 10UF, 25V
	C570	ECEA2CNR47S	E 0.47UF, 160V
	C571	ECKD2H103ZF7	C 0.01UF, Z, 500V
	C600	ECA1CMH101	E 100UF, 16V
	C601	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C602	ECA1HMH4R7	E 4.7UF, 50V
	C603	ECA1VMH470	E 47UF, 35V
	C604	ECA1CMH471	E 470UF, 16V
	C605	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C606	ECQB1H104JF	P 0.1UF, J, 50V
	C607	ECQB1H104JF	P 0.1UF, J, 50V
	C608	ECQB1H104JF	P 0.1UF, J, 50V
	C609	ECA1HM010	E 1UF, 50V
	C611	ECA1CMH102	E 1000UF, 16V
	C612	ECA1HMHR47	E 0.47UF, 50V
	C613	ECEA1HNR47U	E 0.47UF, 50V
	C614	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C616	ECA1CMH101	E 100UF, 16V
	C617	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C618	ECA1CMH101	E 100UF, 16V
	C619	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C620	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C621	ECUX1H120JCX	C 12PF, J, 50V
	C622	ECA1HM4R7	E 4.7UF, 50V
	C623	ECQB1H474JF	P 0.47UF, J, 50V
	C624	ECA1HGN010G	E 1UF, 50V
	C625	ECQB1H104JF	P 0.1UF, J, 50V
	C626	ECQB1H104JF	P 0.1UF, J, 50V
	C631	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C632	ECA1HMH330	E 33UF, 50V
	C633	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C634	ECA1HMH330	E 33UF, 50V
	C635	ECUX1H101JCX	C 100PF, J, 50V
	C636	ECUX1H101JCX	C 100PF, J, 50V
	C637	ECUX1H101JCX	C 100PF, J, 50V
	C640	ECA1HGN010G	E 1UF, 50V
	C642	ECQB1H334JF	P 0.33UF, J, 50V
	C644	ECCF1H820JC	C 82PF, J, 50V
	C645	ECCF1H181JC	C 180PF, J, 50V
	C646	ECA1HMH4R7	E 4.7UF, 50V
	C647	ECCF1H680JC	C 68PF, J, 50V
⚠	C801	ECKDAE472ZE	C 4700PF, Z,
⚠	C802	ECKDAE472ZE	C 4700PF, Z,
⚠	C803	ECKCNA222MEB	C 2200PF, M,
⚠	C804	ECKCNA222MEB	C 2200PF, M,
⚠	C805	ECKDAE472ZE	C 4700PF, Z,
⚠	C806	ECKDAE472ZE	C 4700PF, Z,
⚠	C807	ECQU2A823MN	P 0.082UF, M, 250V
⚠	C808	ECQU2A823MN	P 0.082UF, M, 250V
	C809	ECQB1H103JF	P 0.01UF, 50V
⚠	C811	EC0S2DA331BB	E 330UF, 200V
⚠	C812	EC0S2DA331BB	E 330UF, 200V
	C813	ECQB1H333KF	P 0.033UF, K, 50V
	C814	ECKD3D471JBN	C 470PF, J, 2KV
	C815	ECQB1H471JF	P 470PF, J, 50V
	C816	ECQB1H272JF	P 2700PF, J, 50V

	Ref.No	Part No	Description
	C817	ECA1HHG101	E 100UF, 50V
	C818	ECA1HHG220	E 22UF, 50V
	C819	ECKD3A471KBP	C 470PF, K, 1KV
	C820	ECKD3A471KBP	C 470PF, K, 1KV
	C821	ECKD3A561KBP	C 560PF, K, 1KV
	C822	EC0S2PA221BB	E 220UF, 180V
	C823	ECA1EHG102	E 1000UF, 25V
	C824	ECKD3A561KBP	C 560PF, K, 1KV
	C825	EEUFC1E102	E 1000UF, 25V
	C826	EEUFC1E102	E 1000UF, 25V
	C827	ECA1VHG221	E 220UF, 35V
	C828	ECA1CHG101	E 100UF, 16V
	C829	ECJ2XF1H103Z	C 0.01UF, Z, 50V
	C830	ECA1VHG221	E 220 UF, 35V
	C831	ECA1AHG222	E 2200UF, 10V
	C832	ECJ2XF1H103Z	P 0.01UF, Z, 50V
	C833	EEUFC1V470	E 47 UF, 35V
	C835	ECA1VHG221	E 220 UF, 35V
⚠	C836	ECKCNA102MBB	C 1000PF, M,
	C837	ECA1HHG010	E 1UF, 50V
	C838	EEUFC1V221	E 220UF, 35V
	C839	ECUX1H103KBX	C 0.01UF, K, 50V
	C840	ECUX1H103KBX	C 0.01UF, K, 50V
	C850	ECA1CMH101	E 100UF, 16V
	C851	ECA1VHG221	E 220 UF, 35V
	C1000	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C1001	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C3001	ECEA1HN100U	E 10UF, 50V
	C3002	ECEA1HN100U	E 10UF, 50V
	C3003	ECQB1H103JF	P 0.01UF, J, 50V
	C3004	ECEA1HN010U	E 1UF, 50V
	C3005	ECEA1HN100U	E 10UF, 50V
	C3006	ECEA1HN100U	E 10UF, 50V
	C3007	ECEA1HN100U	E 10UF, 50V
	C3009	ECEA1HN220U	E 22UF, 50V
	C3013	ECEA1HN4R7U	E 4.7UF, 50V
	C3014	ECEA1CKA101	E 100UF, 16V
	C3015	ECEA1HKA330	E 33UF, 50V
	C3016	ECEA1HKA100	E 10UF, 50V
	C3017	ECEA1HKA100	E 10UF, 50V
	C3018	ECUX1H181JCX	C 180PF, J, 50V
	C3019	ECEA1HN010U	E 1UF, 50V
	C3231	ECQB1H104JF	P 0.1UF, J, 50V
	C3233	ECA1HMH100	E 10UF, 50V
	C3234	ECJ2XF1H104Z	C 0.1UF, Z, 50V
	C3235	ECA1HMH330	E 33UF, 50V
	C6501	ECA1CM101	E 100UF, 16V
	C6502	ECUX1H470JCX	C 47PF, J, 50V
	C6511	ECQB1H103JF	P 0.01UF, J, 50V
	C6512	ECA1VM470	E 47UF, 35V

OTHERS

	A1	TJSF10025	25P CONNECTOR
	A4	TJS3A9650	4P CONNECTOR
	A8	TJS3A9920	12P CONNECTOR
	B1	TJSF10125	25P CONNECTOR
	B2	TJS1A9850	12P CONNECTOR
	B3	TJS1A9850	12P CONNECTOR
	B4	TJS118590	2P CONNECTOR
	B5	TJS3A9660	5P CONNECTOR
	B8	TJS3A9920	12P CONNECTOR
	W2	TJS2A8410	CONNECTOR
	W3	TJS2A8410	CONNECTOR
	Y1	TJS3A9660	5P CONNECTOR
	Y2	TJS3A9650	4P CONNECTOR
	B9	TJS3A9670	6P CONNECTOR
⚠	F801	XBA1F30NU100	FUSE 125V 3A
	F801-1	TJC6319	FUSE HOLDER,LARGE
	F801-2	TJC6319	FUSE HOLDER,LARGE
	JA1	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA2	ERJ6GEY0R00	M 0 OHM, J, 1/10W

	Ref.No	Part No	Description
	JA3	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA4	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA5	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA6	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA7	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA8	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA9	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA10	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA11	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA12	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JA13	ERJ6GEY0R00	M 0 OHM, J, 1/10W
⚠	JK002	TJS1A5081B	CRT SOCKET
	JK3001	TJS1A4480	BNC TERMINAL
	JK3002	TJSD01202	BNC TERMINAL
	JK3003	TJSF03904	S TERMINAL
	JK3004	TJS2A9010	S-VIDEO TERMINAL
	JK3005	TJSF47902	JACK
	JK3006	TJS1A4480	BNC TERMINAL
	JK3007	TJSD01202	BNC TERMINAL
	JK3008	TJS1A4480	BNC TERMINAL
	JK3009	TJSD01202	BNC TERMINAL
	JK3010	TJS1A4480	BNC TERMINAL
	JK3011	TJSD01202	BNC TERMINAL
	JK3012	TJS1A7200	HEDPHONE JACK
	JK3013	TJS1A4480	BNC TERMINAL
	JK3014	TJSD01202	BNC TERMINAL
	JK3015	TJSF47902	JACK
	JK3016	TJSF48202	DC JACK
	JS001	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS004	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS005	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS006	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS009	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS402	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS403	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	JS604	ERJ6GEY0R00	M 0 OHM, J, 1/10W
	RTL	TNPA1426	CIRCUIT BOARD S
	RTL	TNPA1427	CIRCUIT BOARD Y
	RTL	TXN/B1MZKZ	CIRCUIT BOARD B
	RTL	TXN/W1MZKZ	CIRCUIT BOARD W
	RTL	TNPH0281	CIRCUIT BOARD A
⚠	S801	ESB99857V	SWITCH
	S1001	TSEA0003	SWITCH
	S1002	EVQQBH06T	SWITCH
	S1003	EVQQBH06T	SWITCH
	S1004	EVQQBH06T	SWITCH
	S1005	EVQQBH06T	SWITCH
	X001	TSSA104	CRYSTAL
	X601	TSSA116	CRYSTAL
	X6501	TAFHCF0234A	COM FILTER

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